

In the United States Court of Federal Claims

No. 19-859

(Filed: 29 February 2024)

E-NUMERATE SOLUTIONS, INC., and *
E-NUMERATE, LLC, *
*
Plaintiffs, *
* Claim Construction; *Markman* Hearing;
v. * Indefiniteness; Antecedent Basis;
* Means-Plus-Function
*
*
THE UNITED STATES, *
*
Defendant. *
*

Sean T. O'Kelly, with whom was *Gerard M. O'Rourke*, O'Kelly & O'Rourke, LLC, both of Wilmington, DE, for plaintiffs.

Shahar Harel, Trial Attorney, Intellectual Property Section, with whom were *Carrie Rosato*, Trial Attorney, *Scott Bolden*, Of Counsel, *Nelson Kuan*, Of Counsel, *Gary L. Hausken*, Director, Commercial Litigation Branch, and *Brian M. Boynton*, Principal Deputy Assistant Attorney General, Civil Division, U.S. Department of Justice, all of Washington, DC, for defendant.

CLAIM CONSTRUCTION OPINION AND ORDER

HOLTE, Judge.

Plaintiffs e-Numerate Solutions, Inc. and e-Numerate, LLC accuse the government of patent infringement. The government argues eighteen claim terms in four asserted patents are indefinite pursuant to 35 U.S.C. § 112 or must be construed pursuant to § 112, paragraph 6. While the parties raised numerous terms for construction, the Court's procedures for claim construction, modeled after the rules of Judge Alan Albright of the United States District Court for the Western District of Texas, aided the Court in efficiently handling this claim construction.¹ The Court previously issued a claim construction opinion and order construing disputed terms not implicated by the government's indefiniteness arguments,² following agreement by the parties at a status conference to split the *Markman* hearing into two days.³ The Court then held a

¹ See also *Haddad v. United States*, 164 Fed. Cl. 28 (2023); *Giesecke & Devrient GmbH v. United States*, 163 Fed. Cl. 430 (2023); *Wanker v. United States*, 152 Fed. Cl. 219 (2021); *Thales Visionix, Inc. v. United States*, 150 Fed. Cl. 486 (2020); *CellCast Techs., LLC v. United States*, 150 Fed. Cl. 353 (2020).

² *e-Numerate Sols., Inc. v. United States*, 165 Fed. Cl. 237 (2023).

³ 7 Oct. 2022 Status Conference Tr. ("SC Tr.") at 101:14–19, ECF No. 100 ("THE COURT: So the Court hopes to divide the *Markman* hearing into two days with . . . the terms in day one, as much as we can get through them, and

second *Markman* hearing to construe the disputed terms related to indefiniteness. This Claim Construction Opinion and Order construes the parties' disputed terms implicating indefiniteness. For the reasons below, the Court finds: Terms 1 and 2 have antecedent basis in their respective independent claims and are not indefinite; Terms 3 and 4 are not indefinite because the means-plus-function terms are supported by algorithmic disclosure; and Terms 5, 6, and 7, as means-plus-function terms, are indefinite for lack of disclosed structure. Additionally, Terms 8–16 recite “code for,” and the parties dispute whether the language should invoke means-plus-function interpretation under § 112, paragraph 6. The parties both agreed a term reciting “code for” and a term reciting “means for,” may have different definiteness conclusions, despite reciting the same functions. In this context, the Court finds the government has not met its burden to prove “code for” invokes § 112, paragraph 6. As the indefiniteness arguments for Terms 8–16 rely solely on interpreting the terms as means-plus-function, the Court accordingly finds Terms 8–16 definite. Based on the conclusions for each of these terms, and for the reasons below, the Court accordingly finds claim 26 of the '816 Patent and claim 18 of the '383 Patent invalid as indefinite.

I. Overview of Claims⁴

The Court outlined the patents and claims at issue in its first claim construction Order. *See e-Numerate Sols., Inc. v. United States*, 165 Fed. Cl. 237, 244–58 (2023). Prior to the second *Markman* hearing, the parties filed supplemental briefing on three additional terms which the government alleges are indefinite. *See* Def.'s Suppl. Claim Constr. Br. on Indefiniteness (“Gov't's Suppl. Indef. Br.”), ECF No. 111; Pl.'s Br. in Opp'n to Gov't's Suppl. Claim Constr. Br. (“Pl.'s Suppl. Indef. Br.”), ECF No. 112. The claims at issue in this indefiniteness claim construction Order are:

- U.S. Patent No. 7,650,355, claim 15 (Term 1), claim 42 (Term 1);
- U.S. Patent No. 8,185,816, claim 12 (Term 2), claim 26 (Terms 3 and 5);
- U.S. Patent No. 9,262,383, claim 1 (Terms 8–10), claim 18 (Terms 4, 6, and 7); and
- U.S. Patent No. 9,268,748, claim 11 (Terms 11–18).

II. Applicable Law⁵

A. Indefiniteness

“A patent shall be presumed valid. . . . The burden of establishing invalidity of a patent or any claim thereof shall rest on the party asserting such invalidity.” 35 U.S.C. § 282(a). Issued patents grant the patentee “certain exclusive rights,” which may be enforced through civil actions for infringement pursuant to 35 U.S.C. § 271. *Microsoft Corp. v. I4I Ltd. P'ship*, 564 U.S. 91,

then in day two, indefiniteness. Does that make the most sense? [THE GOVERNMENT]: Yes. [PLAINTIFFS]: Yeah.”).

⁴ For the factual and procedural history of the case as well as a summary of the technology of the asserted patents, refer to the Court's first Claim Construction Opinion and Order. *See e-Numerate Sols., Inc. v. United States*, 165 Fed. Cl. 237, 243–46 (2023).

⁵ For the law of claim term interpretation, refer to the Court's first Claim Construction Opinion and Order. *See e-Numerate Sols., Inc. v. United States*, 165 Fed. Cl. 237, 258–59 (2023).

96 (2011). In the previous claim construction Order, the Court outlined the applicable law for claim construction generally. *e-Numerate Sols. v. United States*, 165 Fed. Cl. 237, 258–60 (2023).

This claim construction Order solely addresses indefiniteness. “[I]ndefiniteness is a question of law and in effect part of claim construction.” *ePlus, Inc. v. Lawson Software, Inc.*, 700 F.3d 509, 517 (Fed. Cir. 2012). “Indefiniteness must be proven by clear and convincing evidence.” *Sonix Tech. Co. v. Publ’ns Int’l, Ltd.*, 844 F.3d 1370, 1377 (Fed. Cir. 2017). A patent specification must conclude with claims distinctly pointing out the subject matter of the invention. 35 U.S.C. § 112, ¶ 2.⁶ Patent claims must apprise “a skilled artisan [of] the scope of the claimed invention with reasonable certainty.” *Sonix Tech. Co.*, 844 F.3d at 1376. If the claim language fails to apprise a skilled artisan with reasonable certainty, the patent claim is indefinite under § 112, paragraph 2. *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 910 (2014). The incorporation of general knowledge “sufficiently well established in the art and referenced in the patent” will help render a claim definite. *Presidio Components, Inc. v. Am. Tech. Ceramics Corp.*, 875 F.3d 1369, 1377 (Fed. Cir. 2017).

Claim construction may contain indefiniteness inquiries, but other invalidity arguments under § 112, such as lack of enablement or lack of adequate written description, are separate and distinct. *See ePlus, Inc.*, 700 F.3d at 517; *Phillips v. AWH Corp.*, 415 F.3d 1303, 1327 (Fed. Cir. 2005) (“[W]e have certainly not endorsed a regime in which validity analysis is a regular component of claim construction.”); *see also Metabolite Lab’ys, Inc. v. Lab’y Corp. of Am. Holdings*, 370 F.3d 1354, 1361 (Fed. Cir. 2004); *Sw. Software, Inc. v. Harlequin Inc.*, 226 F.3d 1280, 1297–98 (Fed. Cir. 2000). Despite invalidity conceptually overlapping with indefiniteness, parties must use the proper standard when arguing invalidity. *See, e.g., Augme Techs., Inc. v. Yahoo! Inc.*, 755 F.3d 1326, 1340 (Fed. Cir. 2014) (“Appellants’ arguments appear to be based on the wrong legal standard, i.e., written description or enablement as opposed to indefiniteness.”); *Process Control Corp. v. HydReclaim Corp.*, 190 F.3d 1350, 1358 n.2 (Fed. Cir. 1999) (“[D]efiniteness and enablement are analytically distinct requirements [of validity], even though both concepts are contained in 35 U.S.C. § 112.”).

B. Means-Plus-Function Claims

Patent claims may be directed to a combination comprising a series of elements. “A patentee may express an ‘element in a claim for a combination’ ‘as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof.’” *HTC Corp. v. IPCom GmbH & Co., KG*, 667 F.3d 1270, 1278 (Fed. Cir. 2012) (quoting 35 U.S.C. § 112, para. 6). Known as means-plus-function claiming, this claim drafting technique pursuant to § 112, paragraph 6 results in a claim construction covering “the

⁶ The paragraphs of 35 U.S.C. § 112 were replaced with newly designated subsections when the America Invents Act (AIA), Pub. L. No. 112–29, took effect on 16 September 2012. The four asserted patents the government argues implicate indefiniteness in this case all claim a priority date before the AIA was enacted, so the Court refers to the pre-AIA version of § 112. *See e-Numerate Sols., Inc. v. United States*, 165 Fed. Cl. 237, 261 (2023) (“The government suggested the Court clarify HTML, XML, and SGML predate 21 May 1999, the priority date claimed for all asserted patents except the ‘842 Patent, and plaintiffs agreed.” (emphasis added)).

corresponding structure, material, or acts described in the specification and equivalents thereof.” 35 U.S.C. § 112, para. 6.

The presence of the word “means” creates a rebuttable presumption indicating invocation of § 112, paragraph 6 but is not the “essential inquiry” in “assess[ing] . . . whether the limitation in question is a means-plus-function term.” *See Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1348 (Fed. Cir. 2015). Instead, the analysis turns on “whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure.” *Id.* Sufficient structure is recited “if the claim term is used in common parlance or by persons of skill in the pertinent art to designate structure, even if the term covers a broad class of structures and even if the term identifies the structures by their function.” *Skky, Inc. v. MindGeek, S.A.R.L.*, 859 F.3d 1014, 1019 (Fed. Cir. 2017) (quoting *TecSec, Inc. v. Int'l Bus. Machs. Corp.*, 731 F.3d 1336, 1347 (Fed. Cir. 2013)). If both the claim and the specification fail to disclose sufficient structure to perform the claimed function, then the claim is indefinite. *Williamson*, 792 F.3d at 1352.

III. Disputed Claim Term #1: “the step of receiving”

Plaintiffs’ Proposed Construction	Defendant’s Proposed Construction
Not indefinite. In claim 15, the step referred to is “receiving a series of numerical values having tags indicating characteristics of the numerical values” in claim 1. In claim 42, the step referred to is “receiving a series of numerical values having tags indicating characteristics of the numerical values” in claim 28.	Indefinite.

The government disputes the construction of this claim term in claims 15 and 42 of the ’355 Patent. Rev. Joint Cl. Constr. Statement Ex. A (“Rev. J. Cl. Constr.”) at 6.

The following claim limitation highlights selected usage of the term in context:

wherein *the step of receiving* comprises receiving tags indicating characteristics selected from the group consisting of: (1) value, (2) semantics, (3) format, (4) measurement, (5) structure, and (6) provenance.

’355 Patent col. 57 ll. 34–37 (emphasis added).

A. Parties’ Arguments

The parties’ primary dispute is whether “the step of receiving” has antecedent basis in one of two terms in the corresponding independent claim. Specifically, claim 1 and claim 28 of the ’355 Patent recite both “receiving a series of numerical values having tags indicating characteristics of the numerical values” and “receiving a macro defined to perform an operation on the series of numerical values.” ’355 Patent col. 56 ll. 36–56, col. 58 ll. 46–67. Plaintiffs

argue “the phrase in the dependent claim refers to the first receiving step: ‘receiving a series of numerical values having tags indicating characteristics of the numerical values’” because “[t]hat [antecedent] phrase explicitly refers to ‘tags indicating characteristics,’” as the dependent claims do. Pls.’ Opening Claim Constr. Br. on Indefiniteness (“Pls.’ Indef. Br.”) at 11–12, ECF 79. According to plaintiffs “[t]here is simply no reason that a person [having] ordinary skill in the art [(PHOSITA)] would think that the limitations of claims 15 and 42 would (or could) refer to” the other “receiving” step, because the other “receiving” step addresses only the macro, not tags and their characteristics. *Id.* at 12. Plaintiffs assert the limitations at the end of independent claims 1 and 28—“the step of receiving the macro comprises . . .”—*see* ’355 Patent col. 56 ll. 50–56, col. 58 ll. 60–67, further supports a lack of ambiguity in the dependent claims because the macro “receiving” step is already clarified. Pls’ Indef. Br. at 12. e-Numerate’s expert proposes the Court read the phrase in the dependent claim as referring to the first receiving step; in other words, reading “receiving a series of numerical values having tags indicating characteristics of the numerical values,” as explicitly referring to “tags indicating characteristics of numerical values.” Decl. of Michael Smith (“Smith Decl.”) ¶ 37, ECF No. 81-9. Additionally, e-Numerate’s expert testifies “claims 15 and 42 further limit the characteristics recited in that phrase in the independent claims” and, accordingly, a PHOSITA would readily understand such. *Id.*

The government argues the claim term could plausibly refer to the macro “receiving” step instead, because independent claims 1 and 28 require the macro to include meta-data, which “may include information such as the source of the macro[] and correspond to the provenance characteristic recited in [c]laims 15 and 42.” Def.’s Responsive Claim Constr. Br. on Indefiniteness (“Gov’t’s Resp. Indef. Br.”) at 8, ECF No. 83. The government further cites as support the inclusion of a “macro source” element and a “line item” in the “Document Type Definition” (DTD) disclosed in the ’355 Patent specification. *Id.* at 8–9. The government asserts the claim term could also refer to the first “receiving” step from independent claims 1 and 28, so the term is ambiguous and therefore indefinite. *Id.* at 9. The government proffers its expert’s opinion “a P[H]OSITA could not reasonably determine the scope of the ‘step of receiving’ limitation of claims 28 and 42.” *Id.* The government’s expert contends “it remains unclear which is the proper antecedent basis for the term ‘the step of receiving comprises receiving tags’ as recited in claims 15 and 42 as it could refer to either the first or second ‘receiving’ clause in the relevant independent claim.” Martin Decl. ¶ 45, ECF No. 81-7.

Plaintiffs contend the government’s expert’s “opinion is not consistent with the clear meaning of the claim language involved and should be disregarded.” Pls.’ Indef. Br. at 12 (citing *Phillips v. AWH Corp.*, 415 F.3d 1303, 1318 (Fed. Cir. 2005)). Additionally, plaintiffs reply, the government’s “construction is contrary to the natural and logical reading of the claim language itself and should be rejected.” Pls.’ Reply Claim Constr. Br. on Indefiniteness (“Pls.’ Reply Indef. Br.”) at 3–4, ECF No. 89 (citing *Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1116 (Fed. Cir. 2004) (“[A] claim construction analysis must begin and remain centered on the claim language itself, for that is the language the patentee has chosen to particularly point[] out and distinctly claim[] the subject matter which the patentee regards as his invention.” (internal quotation marks omitted) (citation omitted)). Plaintiffs further argue: “The issue is not how claims *could* be read, but rather how they *would* be read from the perspective of a” PHOSITA. Pls.’ Sur-Reply Claim Constr. Br. on Indefiniteness (“Pls.’ Sur-Reply Indef. Br.”)

at 1, ECF No. 92 (citing *Phillips*, 415 F.3d at 1313 (“The inquiry into how a [PHOSITA] understands a claim term provides an objective baseline from which to begin claim interpretation.”)).

B. Analysis

1. The Court’s Preliminary Construction

Before the *Markman* hearing, the Court considered the parties’ claim construction briefs and all referenced materials completely in reaching a preliminary construction for this disputed term. The first “receiving” clause of claims 1 and 28 recites: “receiving a series of numerical values having tags indicating characteristics of the numerical values.” ’355 Patent col. 57 ll. 36–37. The second recites “the macro comprises receiving the macro including interpreted code, meta-data, and error handling instructions.” ’355 Patent col. 56 ll. 51–56, col. 58 ll. 46–50. In *Nautilus*, the Supreme Court clarified a claim is indefinite “if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention.” *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2014). Plaintiffs have agreed to, and the Court previously adopted, the government’s proposed construction of the term “macro” as a “short program which performs one or more well-defined, generally limited tasks.” *See e-Numerate Sols., Inc. v. United States*, 165 Fed. Cl. 237, 278 (2023). Based in part on the previous construction, the Court preliminarily found a PHOSITA would be “reasonably certain” “the step of receiving comprises receiving tags” refers to the first “receiving” step in independent claims 1 and 28, referring to tags and characteristics, and not the second receiving step, referring to receiving a macro (i.e., a “short program, which performed one or more well defined, generally limited tasks.”). ’355 Patent col. 56 ll. 36–56, col. 58 ll. 47–67; *see e-Numerate Sols.*, 165 Fed. Cl. at 278. Accordingly, the Court decided the following preliminary construction: plain and ordinary meaning, consistent with the Court’s previous claim constructions. *See Nautilus*, 572 U.S. at 910.

The Court’s Preliminary Construction
Not indefinite.

2. The Court’s Final Construction

At the *Markman* hearing, the parties maintained their disagreement on indefiniteness of “the step of receiving.” Despite Claim 1 reciting both “receiving a series of numerical values” and “receiving a macro,” plaintiffs assert the plain language of the claims and the similarity of claim terms overcome any antecedent basis issues. 9 Aug. 2023 Oral Arg. Tr. (Tr.) at 18:17–19:4, ECF No. 115. At oral argument, the government argued the terms were indefinite, alleging: (1) a PHOSITA would find ambiguity in the claims; and (2) after finding ambiguity, a PHOSITA would read into the claims the preferred embodiment in which macros include macro headers which in turn include certain tags. Tr. at 22:2–14.

First, the Court addresses the government’s argument the plain language of the claim term is ambiguous and could be read as referring to either “receiving a series of numerical values

having tags indicating characteristics of the numerical values” (the “first receiving limitation”) or “receiving a macro defined to perform an operation on the series of numerical values” (the “second receiving limitation”). Gov’t’s Resp. Indef. Br. at 7. In determining ambiguity, the claim language is “not construed in a vacuum” but instead is read in light of “all of the intrinsic evidence as it pertains to the terms in question.” *DeMarini Sports, Inc. v. Worth, Inc.*, 239 F.3d 1314, 1327 (Fed. Cir. 2001). Plaintiffs correctly indicate the language of dependent claim 15 mirrors the language of independent claim 1. Tr. at 18:17–19:4 (“[PLAINTIFFS]: . . . The first step in claim 1 talks about receiving the series of numerical values having tags indicating characteristics of the numerical values. In claim 15, it says, ‘[w]herein the step of receiving [is] comprised of receiving tags indicating characteristics,’ and [then] it lists them.”). Claim 15 recites “tags,” “characteristics,” and “value,” which directly mirror claim 1’s first receiving limitation: “receiving numerical values having tags indicating characteristics of the numerical values.” Compare ’355 Patent col. 57 ll. 31–34, with *id.* col. 56 ll. 36–37. Claim 1’s second receiving limitation, in contrast, recites a macro but makes no mention of “characteristics,” “tags,” or “values.” *See id.* col. 56 ll. 54–56 (“receiving a macro . . . including interpreted code, meta-data, and error handling instructions”). Due to the similarity of claim 15 to the first receiving limitation—and its dissimilarity to the second receiving limitation—a PHOSITA would be “reasonabl[y] certain[]” the limitations of dependent claim 15 narrow the first “receiving” limitation (“receiving a series of numerical values having tags”) and not the second “receiving” limitation (“receiving the macro”). *See Nautilus*, 572 U.S. at 910.

Second, the government contends the claims are further ambiguous in light of the specification. *See* Gov’t’s Resp. Indef. Br. at 9. To arrive at this ambiguity, the government asserts the specification’s “preferred embodiment” implies a macro must include characteristics, tags, and values equivalent to those recited in claim 15. Tr. at 15:8–14 (“[THE GOVERNMENT:] So a macro document consists of three documents: a macro header, a macro code, and a macro references element. So all three are sent together in a macro document and the macro code corresponds to the software. But the macro header is additional information that must be included in this preferred embodiment.”); Tr. at 16:16–24 (“[THE GOVERNMENT]: . . . when we’ve been referring to the macro, you receive the code, but you also receive other elements. And for those elements, you receive tags with certain attributes. . . you receive a macro header and you receive a macro reference, and that’s shown in the ’748 Patent, column 97.”). In sum, the government’s theory of ambiguity requires a PHOSITA to: (1) read the claim in light of a preferred embodiment in the specification; (2) assume the preferred embodiment’s “tags with certain attributes,” Tr. at 16:20, are necessary limitations not recited in the claims; and (3) find the implied necessary limitations cause ambiguity as to the scope of the claims. While the standard for whether a PHOSITA would be “reasonably certain” may take into account the specification, embodiments in the specification are not read into the claims. *See Playtex Prod., Inc. v. Procter & Gamble Co.*, 400 F.3d 901, 908 (Fed. Cir. 2005) (“Claims of a patent may only be limited to a preferred embodiment by the express declaration of the patentee . . .” (citing *Karlin Tech., Inc. v. Surgical Dynamics, Inc.*, 177 F.3d 968, 973 (Fed. Cir. 1999))). The Court previously construed the definition of “macro” as a “short program which performs one or more well-defined, generally limited tasks.” *e-Numerate Sols.*, 165 Fed. Cl. at 280. The Court’s construction of “macro” does not necessarily encourage a skilled artisan to turn to the specification to read in the government’s cited embodiment. The plain language of the claims, therefore, cannot support inferring the second receiving step (“receiving a macro”)

would include the tags or meta-data cited in claim 15. *See Nautilus*, 572 U.S. at 910.

The Court accordingly maintains its preliminary construction and finds Term 1 is not indefinite for lack of antecedent basis. The Court additionally clarifies the “step of receiving” referred to by claim 15 is “receiving a series of numerical values having tags indicating characteristics of the numerical values” in claim 1. Additionally, the “step of receiving” referred to by claim 42 is “receiving a series of numerical values having tags indicating characteristics of the numerical values” in claim 28. *See Phillips.*, 415 F.3d at 1312–13.

Plaintiffs' Proposed Construction	Defendant's Proposed Construction
Not indefinite. In claim 15, the step referred to is “receiving a series of numerical values having tags indicating characteristics of the numerical values” in claim 1. In claim 42, the step referred to is “receiving a series of numerical values having tags indicating characteristics of the numerical values” in claim 28.	Indefinite.
Court's Final Construction	
Not indefinite. The “step of receiving” referred to by claim 15 is “receiving a series of numerical values having tags indicating characteristics of the numerical values” in claim 1. The “step of receiving” referred to by claim 42 is “receiving a series of numerical values having tags indicating characteristics of the numerical values” in claim 28.	

IV. Disputed Claim Term #2: “the markup language”

Plaintiffs' Proposed Construction	Defendant's Proposed Construction
Not indefinite. Antecedent basis is implied, <i>inter alia</i> , by the use of the term “markup document” in claim 10.	Indefinite.

The government disputes the construction of this claim term in claim 12 of the '816 Patent. Rev. J. Cl. Constr. at 11.

The following claim limitation highlights selected usage of the term in context:

The data processing system of claim 10, wherein *the markup language* is compliant with Extensible Markup Language version 1.0.

'816 Patent col. 56 ll. 28–30 (emphasis added).

A. Parties' Arguments

The parties disagree whether the term “markup language” in claim 12 of the ’816 Patent has antecedent basis. Pls.’ Indef. Br. at 13; Gov’t’s Resp. Indef. Br. at 10. Plaintiffs allege antecedent basis is found in the ’816 patent’s abstract: “a computer markup language, referred to as Reusable Data Markup Language (‘RDML’)” Pls.’ Indef. Br. at 13. Plaintiffs cite language from the specification, which indicates “markup language is a way of embedding markup ‘tags,’ special sequences of characters.” *Id.* at 14 (quoting ’816 Patent col. 1 ll. 38–43). Plaintiffs contend *Energizer Holdings, Inc.*, in which the Federal Circuit stated “despite the absence of explicit antecedent basis, ‘[i]f the scope of a claim would be reasonably ascertainable by those skilled in the art, then the claim is not indefinite,’” supports their position. *Id.* (quoting *Energizer Holdings, Inc. v. ITC*, 435 F.3d 1366, 1370–71 (Fed. Cir. 2006)). The parties agree “markup documents” means “a document that contains markup language tags,” and plaintiffs assert the independent claim’s use of “markup document” accordingly implies antecedent basis for “markup language.” *See id.* at 14 (citing App. to Pls.’ Indef. Br. Ex. A). e-Numerate’s expert contends a PHOSITA would “readily understand that a ‘markup document’ is written in a markup language . . . [and] [t]his is explicitly taught in the ’816 patent.” Smith Decl. ¶ 44; *see* ’816 Patent col. 1 ll. 39–43.

The parties further disagree whether the antecedent basis for “markup language” refers to “first markup document,” “second markup document,” or both in claim 10. *See* Gov’t’s Resp. Indef. Br. at 9–10; Pls.’ Reply Indef. Br. at 4–5. The government contends claim 10 does not recite any limitations regarding the first or second documents containing markup language tags which are compliant with Extensible Markup Language (XML) version 1.0. Gov’t’s Resp. Indef. Br. at 10–11. The government further argues plaintiffs’ citations to the specification fail to support their position. Def.’s Sur-Reply Claim Constr. Br. on Indefiniteness (“Gov’t’s Sur-Reply Indef. Br.”) at 3, ECF No. 91. According to the government, plaintiffs’ citations either do not reference markup languages or, when the specification does discuss markup languages, it states “[a]lthough the preferred embodiment of RDML is a markup language that is a fully compliant implementation of XML version 1.0, other implementations are possible.” *Id.* at 3 (quoting ’816 Patent at col. 8 ll. 44–46). Lastly, the government’s expert contends “a [PHOSITA] would dispute e-Numerate’s contention that a markup language is differentiated from other languages by being ‘human-readable’ and by its use of ‘standard words, rather than typical programming syntax.’” Decl. of David Martin (“Martin Decl.”) ¶ 49. The expert highlights the term “‘markup language’ does not appear in claim 10,” and therefore does not have proper antecedent basis. *Id.* ¶ 50.

Plaintiffs assert the government’s indefiniteness argument “ignores the longstanding rule of claim construction that claim language is meant to be read from the perspective of a person of ordinary skill in the art.” Pls.’ Indef. Reply Br. at 4. Plaintiffs contend the specification clearly indicates the markup documents are all in the same markup language, RDML, and the government has not pointed to any disclosure otherwise. *Id.* at 4–5; Pls.’ Sur-Reply Indef. Br. at 3. Plaintiffs explain “RDML is compliant with the XML standard but improves upon it by using attributes describing the meaning of the numerical value in the markup languages tags.” Pls.’ Sur-Reply Indef. Br. at 3.

B. Analysis

1. The Court's Preliminary Construction

Before the *Markman* hearing, the Court considered the parties' claim construction briefs and all referenced materials in reaching a preliminary construction for this disputed term. The data processing system of claim 10 identifies both the first and second markup document but does not mention compliance with Extensible Markup Language. '816 Patent col. 56 ll. 16–22.⁷ The specification notes “[m]ethods and systems consistent with the present invention provide a markup language, referred to as Reusable Data Markup Language ('RDML'), and a data viewer referred to as the RDML data viewer that is used to retrieve, manipulate and view documents in the RDML format.” *See* '816 Patent col. 8 ll. 15–21. The Court preliminarily determined a PHOSITA would therefore read the term against a backdrop of these references and understand: (1) the markup language discussed would apply to both documents; and (2) having two separate markup languages would not be likely. Only reasonable certainty is required to rule out indefiniteness. *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 910 (2014). The Court accordingly preliminarily found claim 12, when viewed in light of the specification, allows a PHOSITA to identify with “reasonable certainty” a singular markup language acting as “the markup language” of both markup documents. The Court therefore adopted the preliminary construction: “Not indefinite.”

The Court's Preliminary Construction
Not indefinite.

2. The Court's Final Construction

At oral argument, the parties maintained their disagreement on the definiteness of “the markup language” in claim 12. The parties disagree whether the “first markup document” and the “second markup document” in claim 12 use the same markup language. Tr. at 23:21–24:13; Tr. at 33:12–21. The government alleges RDML documents may exist in multiple languages. Tr. at 32:19–33:3. Plaintiffs, however, argue a PHOSITA “would understand that they are written . . . in the same language.” Tr. at 33:4–7.

The government argues the plain meaning of “first markup document” and the “second markup document” in claim 10 does not limit the terms to the same markup language. Tr. at 27:4–12. In the previous *Markman* hearing, the Court defined “markup language” as follows: “[A] nonprogramming computer language using tags to define elements within a document. Examples of markup languages that existed as of 21 May 1999 includes [HTML, XML, SGML and XBRL].” *e-Numerate Sols., Inc. v. United States*, 165 Fed. Cl. 237, 260–62 (2023) (citing *Markup Language*, MICROSOFT COMPUTER DICTIONARY (4th ed. 1999)). The Court's previous construction of this term—and the claim's plain language—contains no limitations requiring the first markup document and the second markup document to have the same markup language. The lack of any limitation on the markup language, however, does not make claim 10 indefinite.

⁷ Claim 10 recites, in part: “a memory storing a program . . . that automatically transforms the numerical values of at least one of the first markup document and the second markup document so that the numerical values of the first markup document and the second markup document have a common format, and that combines the first markup document and the second markup document into a single data set[.]” '816 Patent col. 56 ll. 16–22.

Definiteness requires a claim to “inform those skilled in the art about the scope of the invention with reasonable certainty.” *Nautilus*, 572 U.S. at 910. By its plain language, Term 2 does not limit the first or second markup documents to being the same markup language—the markup documents may be in the same markup language, or they may be different—but a broader scope alone does not affect the reasonable certainty of “combin[ing] the first markup document and the second markup document into a single data set.”⁸ ’816 Patent at col. 56 ll. 20–23. The plain language itself accordingly does not support a finding of indefiniteness. *See Nautilus*, 572 U.S. at 910.

The government further alleges the term is indefinite because it is unclear which “markup language” the term refers to. The government argues reading claim 12 as requiring two documents with the same markup language is plausible and therefore renders the claim indefinite. Tr. at 24:10–13 (“[THE GOVERNMENT:] [I]s it talking about the markup language of the first markup document but not the second, the second but not the first, or is it talking about the first and the second?”). Although it may be possible a PHOSITA reading the claim would interpret the language as ambiguous, this ambiguity would be resolved by the clarity of the specification. *Med. Co. v. Mylan, Inc.*, 853 F.2d 1296, 1304–05 (Fed. Cir. 2017) (defining the scope of a claim term in light of the specification). The specification of ’816 patent recites numerous instances of RDML as the markup language used.⁹ *See e.g.*, ’816 Patent Abstract (“Methods and systems provide a computer markup language referred to as reusable data markup language (‘RDML’), and a data viewer for retrieving, manipulating and viewing documents and files in the DRML format.”). Plaintiffs agree the specification only describes the usage of a single markup language throughout the documents recited in the claims. Tr. at 33:12–34:4 (“[PLAINTIFFS]: Well, I don’t know that there’s an embodiment described where there are somehow two radically different markup language documents. . . . THE COURT: . . . [E]verything in the spec points to the clarity of the same markup language? [PLAINTIFFS]: Right. . . . [T]he spec doesn’t teach necessarily combining like some HTML document and something else. . . . [W]hat it teaches about RDML and it says it can be compliant and the preferred embodiment is compliant with XML. . . . ”).¹⁰ A PHOSITA viewing claims “in light of the specification,” would recognize the specification teaches only RDML embodiments and accordingly be “inform[ed] . . . about the scope of the invention with reasonable certainty” as having both markup documents sharing a single markup language, RDML. *See Nautilus*, 572 U.S. 898 at 910; *DeMarini Sports Inc v. Worth, Inc.*, 239 F.3d 1314, 1327 (Fed. Cir. 2001) (“We note that claim terms are not construed in a vacuum. Rather, to interpret claim terms we look to

⁸ The Court notes the question of enablement is distinct from the present issue of indefiniteness. The Court does not make any finding on enablement at this stage of the proceedings.

⁹ The government asserts reading RDML into the claims as “the markup language” has implications regarding infringement. Tr. at 195:15–24 (“[THE GOVERNMENT]: . . . [W]e don’t think that this is limited to RDML, but even if it were, [] that might not be a helpful resolution because later on, for noninfringement purposes, we’re going to say we’re not using RDML. So what is RDML as opposed to XML as opposed to HTML?”). The Court notes the question of infringement is distinct from the present issue of indefiniteness. *Compare* 35 U.S.C. § 112(a), with § 112(b). The Court does not make any finding on infringement at this stage of the proceedings.

¹⁰ Plaintiffs assert the use of different markup languages is not a possibility. Tr. at 36:14–20 (“THE COURT: Is [having two documents in different markup languages] a possibility? [PLAINTIFFS]: Yeah, we don’t necessarily know that that would be a reasonable reading of the claim language, that they could somehow be in radically different markup language documents—markup languages.”). As noted, *supra* note 9, enablement is distinct from indefiniteness, and the Court makes no finding on enablement at this stage of the proceedings.

all of the intrinsic evidence as it pertains to the terms in question.”). Despite the recitation of two “markup documents” in claim 10, the “markup language” in claim 12 is not indefinite; one of ordinary skill in the art reading the claims in light of the specification would be “reasonabl[y] certain[]” of the term’s antecedent basis. *See Nautilus*, 572 U.S. 898 at 910.

The government lastly argues even if claim 10 only encompasses RDML, both XML-compliant RDML and non-XML-compliant RDML would still constitute different languages and result in an indefinite scope. Tr. at 35:1–6. Compliance with XML 1.0 standards, however, does not transform the underlying RDML markup language into a new language as the government contends. *Id.* (“[THE GOVERNMENT:] [T]he first markup document could be RDML that’s XML 1.0 compliant. The second markup document could be RDML that’s not XML 1.0 compliant.”). Claims 10 and 12 indicate the two documents recited in claim 10 each have the same underlying markup language—RDML—but the claims do not require XML compliance to be consistent across both documents. *Id.* Compliance with XML or other secondary characteristics does not create different “markup languages” which render claim 12 indefinite. A PHOSITA would be “reasonabl[y] certain[]” both markup documents maintain a singular underlying markup language regardless of XML compliance. *Nautilus*, 572 U.S. at 910.

A PHOSITA would be “reasonabl[y] certain[]” both markup documents include the same markup language of RDML. The Court accordingly maintains its preliminary construction and finds Term 1 is not indefinite for lack of antecedent basis. *Id.* The Court additionally clarifies the markup language of claim 12 has antecedent basis in claim 10 because the first markup document and the second markup document of claim 10 share an RDML markup language.

Plaintiffs' Proposed Construction	Defendant's Proposed Construction
Not indefinite. Antecedent basis is implied, <i>inter alia</i> , by the use of the term “markup document” in claim 10.	Indefinite.
Court's Final Construction	
Not indefinite.	
The markup language of claim 12 has antecedent basis in claim 10 because the first markup document and the second markup document of claim 10 share an RDML markup language.	

V. Disputed Claim Term #3: “means for automatically transforming the numerical values of at least one of the first markup document and the second markup document, so that the numerical values of the first markup document and the second markup document have a common format”

Plaintiffs' Proposed Construction	Defendant's Proposed Construction
To be construed under § 112, ¶ 6.	Indefinite.
<u>Function:</u> Automatically transforming the numerical values of at least one of the first markup document and the second markup document.	To be construed under § 112, ¶ 6.
	<u>Function:</u> Automatically transforming the numerical values of at least one of the first

<p><u>Structure:</u> X-value transformer employing conversion factors. Fig.7A, block 710; fig.8, block 808; fig.10, blocks 1012 & 1014; fig.11; col. 19 l. 49–col. 20 l. 3; col. 23 ll. 47–59; col. 30 l. 46–col. 33 l. 33; col. 25 l. 45–col. 27, l. 45.</p>	<p>markup document and the second markup document, so that the numerical values of the first markup document and the second markup document have a common format.</p> <p><u>Structure:</u> Undisclosed.</p> <p>Term is indefinite.</p>
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The government disputes the construction of this claim term in claim 26 of the '816 Patent. Rev. J. Cl. Constr. at 13–14.

The following claim limitation highlights selected usage of the term in context:

A data processing system comprising: . . . *means for automatically transforming the numerical values of at least one of the first markup document and the second markup document, so that the numerical values of the first markup document and the second markup document have a common format*; means for combining the first markup document and the second markup document into a single data; and means for displaying the single data set.

'816 Patent col. 58 ll. 1–17 (emphasis added).

A. Parties' Arguments

Two primary disputes underly the parties' proposed constructions for Term 3: (1) whether the term's "so that" clause should be included in the function, and (2) whether the term's function has sufficient structural support in the specification.

Plaintiffs contend the "so that" clause should not be included in the term's function because it merely states the function's result. Pls.' Indef. Br. at 18. For support, plaintiffs cite *Lockheed*, where the Federal Circuit refused to include a "whereby clause" in a term's function and determined the clause merely stated the result of the limitation rather than adding substance to the claim. *Id.* (citing *Lockheed Martin Corp v. Space Systems/Loral, Inc.*, 324 F.3d 1308 (Fed. Cir. 2003)). The government contends e-Numerate "improperly broadens" the claimed function by excluding the "so that" clause. Gov't's Resp. Indef. Br. at 12. The government asserts the relevant function for Term 3 is not an automatic transformation in the abstract, but rather an automatic transformation where the numerical values of the first markup document and the second markup document have a common format. *Id.* The government argues "the language after 'so that' does not describe the positioning of the 'automatically transforming' means but describes the 'automatically transforming' means and should be part of the function." Gov. Sur-Reply Indef. Br. at 5.

Plaintiffs allege the specification's disclosure of "conversion factors" provides algorithmic support sufficient for the claim to render the term definite. Pls.' Indef. Br. at 18. Plaintiffs assert "as set forth in *CellCast*, the proper (and only) inquiry at this point in the

proceedings is whether there is some algorithm disclosed, and not whether the disclosure is adequate.” Pls.’ Sur-Reply Indef. Br. at 4 (citing *CellCast Techs., LLC v. United States*, 150 Fed. Cl. 353 (2020)). Plaintiffs state “the specification unequivocally discloses the use of conversion factors to transform numbers and provides examples.” *Id.* at 5. Plaintiffs further argue algorithmic sufficiency cannot be resolved at this stage of litigation, before discovery has begun. *Id.* (citing *CellCast*, 150 Fed. Cl. at 381).

The government replies, plaintiffs’ identified disclosures asserted as structure for carrying out the recited transforming function are deficient when considering the full scope of the recited functionality. Gov’t’s Resp. Indef. Br. at 14–15. The government argues there is no coherent algorithm evident in “determining *which* numerical values should be transformed by the X-value transformer.” *Id.* at 15. According to the government, the specification passages cited by plaintiffs do not disclose an algorithm, but rather “provide[] a statement that writing the algorithm is difficult and an *ad hoc* list of special cases.” *Id.* The government also asserts the issue can be resolved at this state of the litigation because, unlike in *CellCast*, “the parties have engaged in extensive expert discovery on claim construction issues.” *Id.* at 17.

B. Analysis

1. The Court’s Preliminary Construction

Before the *Markman* hearing, the Court considered the parties’ claim construction briefs and all referenced materials in full in reaching a preliminary construction. First, the Court considered the proper construction of the function and the dispute over the “so that” clause. The Federal Circuit has explained “[t]he function of a means-plus-function claim must be construed to include the limitations contained in the claim language.” *Lockheed*, 324 F.3d at 1319. The Court determined Term 3’s “so that” clause—“so that the numerical values of the first markup document and the second markup document have a common format”—substantively limited the term because it restricted the manner in which transformation occurs and did not merely state a result of the transformation. ’816 Patent col. 58 ll. 1–17. The Court accordingly preliminarily concluded the “so that” clause limited Term 3’s function. See *id.*

Second, the Court considered whether the means-plus-function term claim contained adequate structural support. For a software-based claim, the claim must be supported by sufficient algorithmic disclosure such that a PHOSITA would “recognize the structure in the specification and associate it with the corresponding function in the claim.” *Noah Sys., Inc. v. Intuit Inc.*, 675 F.3d 1302, 1312 (Fed. Cir. 2012). The Court found algorithmic support primarily in Figure 10, which is further described in the specification at column 25, line 65–column 26, line 28. See ’816 Patent fig.10, col. 25 l. 65–col. 26 l. 28. The Court preliminarily found these portions of the specification disclose steps taking data from an initial document and transforming the document into a new form, including changing a type of currency or the unit via a conversion factor. *Id.* The Court found further support for the algorithm in Figure 11 and its related disclosure, both of which describe steps taking place within the X-value transformer and the transformation of a markup document’s values. See ’816 Patent fig.11, col. 30 l. 46–col. 33 l. 8. This algorithm directly discusses steps taken to perform the function as constructed. See *id.*; ’816 Patent fig.10, col. 25 l. 65–col. 26 l. 28. The Court accordingly concluded, preliminarily,

the specification contained an algorithm sufficient support the term's function, and the term was accordingly not indefinite.

Court's Preliminary Construction
Not indefinite.
<u>Function:</u> Automatically transforming the numerical values of at least one of the first markup document and the second markup document, so that the numerical values of the first markup document and the second markup document have a common format
<u>Structure:</u> RDML data viewer ('816 Patent fig.10, col. 25 l. 65–col. 31 l. 3) and the X-value transformer (<i>id.</i> fig.11, col. 30 l. 46–col. 33 l. 8)

2. The Court's Final Construction

The Court's final construction requires assessing two questions: (1) whether the function of Term 3 is limited by its "so that" clause, *see Lockheed*, 324 F.3d at 1319; and (2) whether the specification discloses sufficient structure to support the claimed functionality, *see EON Corp. IP Holdings LLC v. AT&T Mobility LLC*, 785 F.3d 616, 622–23 (Fed. Cir. 2015) (quoting *In re Katz Interactive Call Processing Patent Litig.*, 639 F.3d 1303, 1316 (Fed. Cir. 2011)).

i. Whether the "so that clause" limits the term's function

To determine whether Term 3 is indefinite, the Court first assesses whether the term's "so that" clause limits the claimed function. Plaintiffs argue the "so that" clause should not be included as part of the function because it is "contrary to controlling Federal Circuit precedent." Pls.' Indef. Br. at 18. Plaintiffs assert the language of the "so that" clause is "analogous" to an excluded whereby clause in *Lockheed* "that merely states the result of the limitations in the claim [and] adds nothing to the substance of the claim." *Id.* (quoting *Lockheed*, 324 F.3d at 1324). The government, in response, argues excluding the "so that" clause "improperly broadens the function" and asserts *Lockheed* "suggests no differently." Gov't's Resp. Indef. Br. at 12. The government argues "[t]he language e-Numerate seeks to exclude does not merely state the result of the limitations in the claim, but rather serves to identify and define the recited 'automatically transforming' function." *Id.* at 13. The government continued to argue at oral argument for the "so that" clause to be included. Tr. at 39:18–40:4 ("[THE GOVERNMENT]: . . . We need the "so that" part. . . . [Y]ou need to show that in order to define the function. You know, without it . . . you can't determine what the structure is or the scope of the structure."). Plaintiffs argue including the clause will not make a material difference for the meaning of the claim but concede "reasonable minds could differ." Tr. at 41:21–42:9 ("[PLAINTIFFS:] I don't know that it makes a material difference in the outcome and certainly reasonable minds could differ as to Term 3 and Term 4, whether those 'so that's' are in."). Plaintiffs also concede allowing the claim to transform the documents into anything rather than into a specific result would broaden the claim, at least conceptually. Tr. at 43:5–11 ("THE COURT: Well if you can transform into anything, does that broaden the claim? [PLAINTIFFS]: Well, it would broaden it in a conceptual sense, but then it has this qualifier in the claim language which would be a substantive limitation that it ends up being in common format, as you construed the term, I think, in some of the other

claims.”).

According to the Federal Circuit in *Lockheed*, a means-plus-function claim may not “be improperly broadened by ignoring the clear limitations contained in the claim language. The function of a means-plus-function claim must be construed to include the limitations contained in the claim language.” *Lockheed*, 324 F.3d at 1319. In *Lockheed*, the Federal Circuit found the district court incorrectly broadened a claim by reducing it to only say “rotating said wheel,” when the proper breadth of the claim should have been “rotating said wheel in accordance with a predetermined rate schedule which varies sinusoidally over the orbit at the orbital frequency of the satellite.” *Id.* The Federal Circuit, however, did not extend the claim limitation to a further “whereby” clause “because a whereby clause that merely states the result of the limitations in the claim adds nothing to the substance of the claim.” *Id.* (citing *Tex. Instruments Inc. v. ITC*, 988 F.2d 1165, 1172, 1023–24 (Fed. Cir. 1993)). The question from *Lockheed*, therefore, is whether the “so that” clause in the means-plus-function claim “merely states the result of the limitations in the claim [and] adds nothing to the substance of the claim” or is a “clear limitation[] contained in the claim language . . . [and the] claim must be construed to include the limitations contained.” *Id.*

In this case, the Court must consider whether the “so that” clause has a substantial effect on the limitations of the claim or is a mere statement of the result. *See id.* As plaintiffs admit, not including the “so that” clause would theoretically broaden the claim. *See* Tr. at 43:5–11. The clause here requires a more limited manner of transforming; specifically, the transforming occurs “so that the numerical values of the first markup document and the second markup document *have a common format*.” ’816 Patent col. 58 ll. 1–17 (emphasis added). A means for automatically transforming numerical values *into any form* is a different limitation than one for automatically transforming numerical values *into a common format*. This clause goes beyond “merely stat[ing] the result of the limitation” and adds substance to the claim. *Lockheed*, 324 F.3d at 1319. The Court accordingly finds the “so that” clause is a substantive limitation on the term’s function. *See id.*

ii. Whether adequate algorithmic structure supports the term’s function

Having identified the portion of the term to limit function, the Court next turns to structure. The parties dispute whether the function is supported by associated algorithmic disclosure in order to not be indefinite. Both parties agree an algorithm is necessary for this claim. Tr. at 75:23–76:4 (“[PLAINTIFFS]: The only—the only claim terms that require an algorithm are the ‘means for automatically transforming’ elements in the two—the ’816 and the ’383 [Patents].”); Tr. at 47:21–22 (“[THE GOVERNMENT]: . . . [W]e need the algorithm that it uses to do [the transforming]”). Plaintiffs assert “there is an algorithm—the use of the conversion factors.” Pls.’ Indef. Br. at 18 (citing ’816 Patent col. 25, ll. 35–col. 27, ll. 45). At oral argument, plaintiffs cited two separate portions of the specification for support, contending the “transforming” function could take place in either: the RDML Data Viewer (including the X-Value Transformer) and the Macros. Tr. at 50:9–51:12 (“[PLAINTIFFS]: . . . the macro is another way to do it. . . . 760 and 758, the macro interface can also make changes further down the line . . .”); Tr. at 66:24–67:2 (“THE COURT: So where is the algorithm for the step of

numerical values for the first document and the second document having a common format? [PLAINTIFFS]: Well, that's taught in Figure 10".

The government contends the support cited by e-Numerate does not include an algorithm, but rather provides an *ad hoc* list of “exactly two scenarios . . . indicat[ing] what should be done in those very specific cases” and “a statement that writing the algorithm is difficult” Gov’t’s Resp. Indef. Br. at 15. The government additionally argues the disclosure plaintiffs cite may be an algorithm, but it does not match the claim’s form and is missing subsets, and thus there is no algorithm supporting the term. Tr. at 62:19–63:8 (“THE COURT: Yeah, I mean, under case law, they’re an algorithm, right? [THE GOVERNMENT]: Yes. THE COURT: So why are they insufficient? [THE GOVERNMENT]: Because . . . implicit in Figure 10 is that there are substeps for some of those boxes. Those boxes are incomplete. So determin[ing] the desired transformation, it doesn’t tell you how to do that. And select[ing] the document to be transformed, that’s not what the claim limitation was directed to. It wasn’t automatically convert[ed] based on a selection of a document; it’s automatically convert[ed] to documents so that they . . . effectively . . . have common units. So this is an algorithm, but it doesn’t match the claim term and it’s missing substeps.”); Tr. at 64:1–2 (“[THE GOVERNMENT]: This is not an algorithm—we don’t see how this algorithm maps to the claim term. . . .”); Tr. at 64:7–11 (“[THE GOVERNMENT]: [The algorithm is] certainly insufficient, but I don’t think that [it] maps—for example, determine desired transformation, that’s just like—it’s a black box. It’s just like that’s the secret sauce and it’s missing that.”).

When a claim is computer-implemented, the specification must “disclose an algorithm for performing the claimed function.” *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1367 (Fed. Cir. 2008) (citing *Aristocrat Techs. Austl. Pty Ltd. v. Int’l Game Tech.*, 521 F.3d 1328, 1333 (Fed. Cir. 2008)). In *Noah Systems*, the Federal Circuit distinguished “cases in which the specification discloses no algorithm” from those “in which the specification . . . disclose[s] an algorithm but a defendant contends that disclosure is inadequate.” *Noah Sys.*, 675 F.3d at 1313; *see also Sisvel Int’l S.A. v. Sierra Wireless, Inc.*, 82 F.4th 1355, 1364–65 (Fed. Cir. 2023). If the claim has no disclosed algorithm, “the inquiry is complete and the claims are indefinite pursuant to § 112(f).” *CellCast*, 150 Fed. Cl. at 380 (citing *EON Corp.*, 785 F.3d at 624). If the claim has some disclosed algorithm, but the parties dispute the adequacy of that algorithm, “arguments regarding the sufficiency of the disclosed algorithms must be evaluated according to expert testimony ‘based on a skilled artisan’s perspective.’” *Id.* (quoting *EON Corp.*, 785 F.3d at 624). For a software-based claim, “[t]he algorithmic structure need not be the operative source code itself.” *Id.* (citing *Typhoon Touch Techs., Inc. v. Dell, Inc.*, 659 F.3d 1376, 1385–86 (Fed. Cir. 2011)). In *CellCast*, this court decided when “expert discovery has not yet been conducted . . . [and] [t]he parties have not been afforded the opportunity to present evidence regarding how a person of ordinary skill in the art would view the disclosure of the asserted patents[,]” evaluation of the sufficiency of algorithms is “best left for summary judgment” *Id.*

For Term 3, the Court preliminarily decided the specification did contain an algorithm, supported in part by two figures, Figure 10 and Figure 11, and the associated written description, which describes the process taken to transform the numerical values. *See* ’816 Patent fig.10, fig.11, col. 25 ll. 36–64, col. 25 l. 65–col. 26 l. 28. Consistent with the preliminary construction, the RDML Data Viewer and X-value transformer describe the steps taken to transform the

values. *Id.* The specification explains “[t]he data viewer 100 accesses the unit, magnitude, modifier, scale, measure and adjustment attributes of the document or line item to be transformed (step 1010). Using these attributes, the data viewer 100 determines the conversion factors, if any, for each (step 1012). . . . The data viewer 100 then multiplies the conversion factors to transform the numerical data into the desired display (step 1014) and displays the transformed line item or document (step 1016).” ’816 Patent col. 26 l. 11–20. The specification also provides an example of how the transformation would take place by explaining how the RDML Data Viewer 100 would transform U.S. Dollars (in thousands) per hour, adjusted for inflation, into Italian Lira (in billions) per day, in nominal Lira. *See* ’816 Patent col. 25 l. 36–col. 25 l. 64. Figure 11 and its related description in the specification also describe the steps taking place within the X-value transformer and the transformation of the document’s values. *See* ’816 Patent fig.11, col. 30 l. 46–col. 33 l. 8. These lines describe transforming one document’s data set to match another document’s and include examples of changing months to years or altering the date format. *Id.* The specification directly discusses the steps taken to perform the function as constructed and therefore contains an algorithm for the claims at issue. *See id.*; ’816 Patent fig.10, col. 25 ll. 65–col. 26 l. 28; *Net MoneyIN*, 545 F.3d at 1367. Insofar as any of the government’s arguments are directed towards the sufficiency of these algorithms, the Court does not make any decisions regarding enablement at this stage. Based on the specification, however, the Court finds algorithmic disclosure sufficient for a PHOSITA to “recognize the structure in the specification and associate it with the corresponding function in the claim.”^{11, 12} *Noah Sys.*, 675 F.3d at 1312.

Plaintiffs additionally argued at oral argument the macros of step 758 and 760 were capable of performing the transformation function. Tr. at 50:9–51:12 (“[PLAINTIFFS]: . . . [T]he macro is another way to do it. . . . 760 and 758 the macro interface can also make changes further down the line [F]or example, Column 9, around—starting around line 28.”). This argument was not in the parties’ briefing, nor were these steps included as part of the structure in their proposed construction. Nevertheless, the column and line numbers plaintiffs cited at oral argument in support of this function do not reference the macro steps and do not provide any additional algorithmic structure to support this claim term. *See id.*; ’816 Patent col. 9 ll. 26–38. The specification does not contain any disclosure describing an algorithm for a macro transforming numerical values. In fact, the only potential “transforming” discussed in the cited

¹¹ Plaintiffs further argue “disputes as to the adequacy of a disclosed algorithm cannot be resolved as part of the claim construction process.” Pls.’ Indef. Br. at 18–19 (citing *CellCast Techs., LLC v. United States*, 150 Fed. Cl. 353, 380 (2020)). While the Court determines the disclosed structural support is adequate to find a PHOSITA would “recognize the structure in the specification and associate it with the corresponding function in the claim,” the Court makes no finding on whether the algorithms are enabling. *See Noah Sys., Inc. v. Intuit Inc.*, 675 F.3d 1302, 1312 (Fed. Cir. 2012) (citation omitted). The Court’s previous decision in *CellCast* is not inapposite, as “the parties [had not been] afforded the opportunity to submit expert evidence regarding a person having ordinary skill in the art.” *CellCast*, 150 Fed. Cl. at 388.

¹² Both parties notably submitted expert declarations and, unsurprisingly, the experts presented opposite conclusions on algorithmic support. In a claim construction dispute like the present, a battle of experts, often presenting—as here—conclusory opinions rarely provides much assistance in determining claim scope. *See* Tr. at 70:16–19 (“[THE GOVERNMENT]: [The government’s expert] agrees that it discusses using conversion factors and . . . [that the patent] recognizes the problem, it says it needs to do this, but it doesn’t explain how to do it.”); Tr. at 71:9–72:1 (“THE COURT: Does your expert agree with the government’s expert? [PLAINTIFFS]: No. . . . He’s also said . . . it teaches an algorithm to transform. . . . THE COURT: So two experts disagree? [PLAINTIFFS]: Yeah, so it’s a conflict in fact . . . ”).

portions is a description of macros “evaluat[ing] the transformation string, and updat[ing] the various titles and legends.” ’816 Patent col. 53 ll. 31–32. These macros do not specify transforming *numerical values* as discussed in the function, but only transforming “titles and legends.” *Id.* The macro portions cited by plaintiffs accordingly provide no additional algorithmic structure to the claim term. *See id.* Accordingly, the macros of step 758 and 760 are not included within the structure of the Court’s final construction of this claim.

Plaintiffs’ Proposed Construction	Defendant’s Proposed Construction
<p>To be construed under § 112, ¶ 6.</p> <p><u>Function</u>: Automatically transforming the numerical values of at least one of the first markup document and the second markup document.</p> <p><u>Structure</u>: X-value transformer employing conversion factors. Fig.7A, block 710; fig.8, block 808; fig.10, blocks 1012 & 1014; fig.11; col. 19 l. 49–col. 20 l. 3; col. 23, ll. 47–59; col. 30, l. 46–col. 33 l. 33; col. 25, l. 45–col. 27 l. 45.</p>	<p>To be construed under § 112, ¶ 6.</p> <p><u>Function</u>: Automatically transforming the numerical values of at least one of the first markup document and the second markup document, so that the numerical values of the first markup document and the second markup document have a common format.</p> <p><u>Structure</u>: Undisclosed.</p> <p>Term is indefinite.</p>
Court’s Final Construction	
<p>Not indefinite.</p> <p><u>Function</u>: Automatically transforming the numerical values of at least one of the first markup document and the second markup document, so that the numerical values of the first markup document and the second markup document have a common format</p> <p><u>Structure</u>: RDML data viewer (’816 Patent fig.10, col. 25 l. 65–col. 31 l. 3) and the X-value transformer (’816 Patent fig.11, col. 30 l. 46–col. 33 l. 8)</p>	

VI. Disputed Claim Term #4: “means for automatically transforming at least a portion of the first or second numerical values of at least one of the first markup document or the second markup document, so that at least some of the first numerical values of the first markup document and at least some of the second numerical values of the second markup document have a common unit of measure”

Plaintiffs’ Proposed Construction	Defendant’s Proposed Construction
<p>To be construed under § 112, ¶ 6.</p> <p><u>Function</u>: Automatically transforming at least a portion of the first or second numerical values of at least one of the first markup document or the second markup document</p> <p><u>Structure</u>: X-value transformer employing</p>	<p>To be construed under § 112, ¶ 6.</p> <p><u>Function</u>: Automatically transforming at least a portion of the first or second numerical values of at least one of the first markup document or the second markup document, so that at least some of the first numerical values of the first markup document and at least some of the second numerical values of the second markup document have a common unit of measure</p>

<p>conversion factors. Fig.7A, block 710; fig.8, block 808; fig.10, blocks 1012 & 1014; fig.11; col. 18, ll. 8–30; col. 22, ll. 17–29; col. 29, l. 13–col. 31, l. 29; col. 24, l. 9–col. 26, l. 10</p>	<p>some of the second numerical values of the second markup document have a common unit of measure.</p> <p><u>Structure:</u> Undisclosed.</p> <p>Term is indefinite.</p>
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The government disputes the construction of this claim term in claim 18 of the '383 Patent. Rev. J. Cl. Constr. at 39.

The following claim limitation highlights selected usage of the term in context:

An apparatus, comprising: means for automatically transforming at least a portion of the first or second numerical values of at least one of the first markup document or the second markup document, so that at least some of the first numerical values of the first markup document and at least some of the second numerical values of the second markup document have a common unit of measure;

'383 Patent col. 146 ll. 34–41 (emphasis added).

A. Parties' Arguments

Plaintiffs argue the “so that” clause included by the government is legally incorrect, and citing *Lockheed*, the government’s interpretation is contrary to Federal Circuit precedent. Pls.’ Indef. Br. at 23–24 (citing *Lockheed Martin Corp v. Space Systems/Loral, Inc.*, 324 F.3d 1308, 1324 (Fed. Cir. 2003)). Plaintiffs also contend the specification contains “conversion factors,” which are sufficient algorithmic support at this stage, and submits the Court should not resolve the dispute over the sufficiency of the algorithm at this stage. *Id.* at 24. The government contends plaintiffs’ omission of the “so that” clause improperly broadens the function, and no structural support exists in the specification. Gov’t’s Resp. Indef. Br. at 26–27. The government argues a PHOSITA would recognize the “so that” clause as a necessary part of the function under this claim term. *Id.* at 26–27.

B. Analysis

At the *Markman* hearing, both parties conceded the arguments for Term 4 are identical to the arguments for Term 3, and the claims should rise or fall together. Tr. at 73:14–74:1 (“[THE COURT:] [B]etween the '383 patent and the '816 patent, do you agree that the arguments for ‘means for automatically transforming[’] in the '383 patent[] overlap with ‘means for automatically transforming’ in the '816 patent? . . . [THE GOVERNMENT]: The arguments are the same, yes. THE COURT: [Plaintiffs], would you agree with that as well? [PLAINTIFFS]: Yeah, the arguments are the same.”); Tr. at 74:9–14 (“THE COURT: And [do you agree] the two terms would likely rise and fall together, so if structural support is found in 3, it would likely be found in 4? [THE GOVERNMENT]: Right. THE COURT: [PLAINTIFFS], you would agree? [PLAINTIFFS]: Yes, Your Honor.”). Consistent with the parties’ agreement Terms 3

and 4 rise or fall together, the Court also finds Term 4's "so that" clause limits its function, and the term has sufficient algorithmic structural support. Tr. at 73:14–74:14; *see id.*; *see also supra* note 12.

Plaintiffs' Proposed Construction	Defendant's Proposed Construction
To be construed under § 112, ¶ 6.	To be construed under § 112, ¶ 6.
<p><u>Function</u>: Automatically transforming at least a portion of the first or second numerical values of at least one of the first markup document or the second markup document</p>	
<p><u>Structure</u>: X-value transformer employing conversion factors. Fig.7A, block 710; fig.8, block 808; fig.10, blocks 1012 & 1014; fig.11; col. 18 ll. 8–30; col. 22 ll. 17–29; col. 29 l. 13–col. 31 l. 29; col. 24 l. 9–col. 26 l. 10</p>	<p><u>Function</u>: Automatically transforming at least a portion of the first or second numerical values of at least one of the first markup document or the second markup document, so that at least some of the first numerical values of the first markup document and at least some of the second numerical values of the second markup document have a common unit of measure</p>
<p><u>Structure</u>: Undisclosed</p>	
<p>Term is indefinite.</p>	
Court's Preliminary Construction	
Not indefinite.	
<p><u>Function</u>: "automatically transforming at least a portion of the first or second numerical values of at least one of the first markup document or the second markup document, so that at least some of the first numerical values of the first markup document and at least some of the second numerical values of the second markup document have a common unit of measure"</p>	
<p><u>Structure</u>: RDML data viewer (support at '383 Patent fig.10, col. 25 ll. 9–12, col. 24 ll. 30–62) and the X-value transformer (support at <i>id.</i> fig.11, col. 29 l. 12–col. 31 l. 29)</p>	
Court's Final Construction	
<p>Not indefinite.</p>	
<p><u>Function</u>: "automatically transforming at least a portion of the first or second numerical values of at least one of the first markup document or the second markup document, so that at least some of the first numerical values of the first markup document and at least some of the second numerical values of the second markup document have a common unit of measure"</p>	
<p><u>Structure</u>: RDML data viewer ('383 Patent fig.10, col. 25 ll. 9–12, col. 24 ll. 30–62) and the X-value transformer (<i>id.</i> fig.11, col. 29 l. 12–col. 31 l. 29)</p>	

VII. Disputed Claim Term #5: "means for combining the first markup document and the second markup document into a single data"

Plaintiffs' Proposed Construction	Defendant's Proposed Construction
To be construed under § 112, ¶ 6.	To be construed under § 112, ¶ 6

<p><u>Function</u>: Combining the first markup document and the second markup document.</p> <p><u>Structure</u>: Primary data store; fig.7, Box 712; fig.8, line 810; fig.11; fig.13; col. 19 l. 66–col. 20 l. 3; col. 31 ll. 4–30; col. 33 ll. 9–59; col. 35, l. 50–col. 36, l. 40.</p>	<p><u>Function</u>: Combining the first markup document and the second markup document into a single data.¹³</p> <p><u>Structure</u>: Undisclosed.</p> <p>Term is indefinite</p>
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The government disputes the construction of this claim term in claim 26 of the '816 Patent. Rev. J. Cl. Constr. at 15.

The following claim limitation highlights selected usage of the term in context:

A data processing system comprising: means for automatically transforming the numerical values of at least one of the first markup document and the second markup document, so that the numerical values of the first markup document and the second markup document have a common format; *means for combining the first markup document and the second markup document into a single data*; and means for displaying the single data set.

'816 Patent col. 58 ll. 1–17 (emphasis added).

A. Parties' Arguments

Plaintiffs first assert the government's improper inclusion of "into a single data" runs counter to *Lockheed* because the phrase recites a result of the process. Pls.' Reply Indef. Br. at 6 (citing *Lockheed Martin Corp v. Space Systems/Loral, Inc.*, 324 F.3d 1308, 1319 (Fed. Cir. 2003) (excluding a "whereby" clause from a term's function)). Plaintiffs then assert the government erroneously relies on the absence of an algorithm to argue the claim is indefinite. Pls.' Indef. Br. at 19. Plaintiffs argue the absence of an algorithm is not dispositive because "combining" is an exception under *Katz*. *Id.* (citing *In re Katz Interactive Call Processing Patent Litig.*, 639 F.3d 1303 (Fed. Cir. 2011)). Plaintiffs further contend categorizing "combining" as a *Katz* exception is correct, based on its expert's testimony, because a PHOSITA would "understand that a data store that combines documents is operable using a general-purpose computer without any special programming." Smith Decl. at ¶¶ 48–54; *see* Pls.' Indef. Br. at 19.

The government alleges the appropriate function of the term is "combining the first markup document and the second markup document into a single data." Gov't's Resp. Indef. Br. at 17–18. According to the government, excluding the phrase "into a single data" would "eviscerate[]" the nature of "combining," failing to capture each of the necessary functions of the term. *Id.* at 18. The government contends omitting "into a single data" is exactly what the Federal Circuit rejected in *Lockheed*. *Id.* (citing *Lockheed*, 324 F.3d at 1324).

¹³ In an earlier proposed claim construction, the government "mistakenly stated the function" of this claim term was indefinite. Def.'s Resp. Indef. Br. at 18, n.5; *see also* App. to Pl.'s Indef. Br. Ex. B at 8, ECF No. 80-3 (stating the function is "Indefinite"). The government subsequently corrected its error. *See* Rev. J. Cl. Constr. at 15.

The government next argues the term is indefinite because the specification fails to provide a required algorithm. *Id.* Assessing plaintiffs' cited structural support, the government alleges the specification's recitation of "vectors" and "hash table or collection data structure" both indicate the plaintiffs' alleged structure—the "primary data store" (PDS)—differentiates rather than combines the documents it holds, thereby failing to support "combining." *Id.* at 19 (citing '816 Patent at col. 33 ll. 26–33). The government further contends "'storing' separate and distinct documents in a 'collection data structure' so the documents may be separately retrieved, is not the same as . . . combining two documents into a single data [set]." Gov. Sur-Reply Indef. Br. at 9 (alteration in original).

Contrary to plaintiffs' position, the government says *Katz* is inapplicable, asserting *Katz* only applies in rare circumstances where a general-purpose computer can perform the function. See Gov't's Resp. Indef. Br. at 20 (citing *Ergo Licensing, LLC v. Carefusion 303, Inc.*, 673 F.3d 1361 (Fed. Cir. 2012)). The government admits storing a document may be considered a standard function for a general-purpose computer but contends combining first and second markup documents into a single data is not. *Id.* The government argues, accordingly, an algorithm is required, plaintiffs have failed to provide an algorithm, and—as a result—the term is indefinite. *Id.*

B. Analysis

1. The Court's Preliminary Construction

Before the *Markman* hearing, the Court considered the parties' claim construction briefs and all referenced materials in full in reaching a preliminary construction. The Court provided the parties with the preliminary construction reproduced below. The Court determined, preliminarily, a general-purpose computer could not perform the functionality without specialized programming, and the specification did not disclose adequate algorithmic structure to support the term's means-plus-function limitation. *See EON Corp. IP Holdings v. AT&T Mobility LLC*, 785 F.3d 616, 622–23 (Fed. Cir. 2015) (quoting *Katz*, 639 F.3d at 1316). Without adequate support for the term's function, the Court found the means-plus-function term to be indefinite. *See id.*; *Noah Sys., Inc. v. Intuit Inc.*, 675 F.3d 1302, 1315–16 (Fed. Cir. 2012).

The Court's Preliminary Construction
Indefinite for lack of structure.
<u>Function</u> : "combining the first markup document and the second markup document into a single dataset"
<u>Structure</u> : Undisclosed.

2. The Court's Final Construction

The parties agree "means for combining the first markup document and the second markup document into a single data" is a means-plus-function limitation. Gov't's Resp. Indef.

Br. at 17; Pls.’ Indef. Br. at 19. The Court’s final construction therefore requires assessing three questions: (1) whether the function of Term 5 includes “combining . . . into a single data [set],” *see Lockheed*, 324 F.3d at 1319; (2) whether a general purpose computer can perform the function and the specification need not disclose an algorithm; and (3) if the function cannot be performed by a general purpose computer, whether the specification discloses sufficient structure to support the claimed functionality, *see EON*, 785 F.3d at 622–23 (quoting *Katz*, 639 F.3d at 1316).

i. Whether the term’s function includes “combining . . . into a single data [set]”

The Court first addresses whether the scope of the claimed function includes “combining” alone or “combining . . . into a single data.” At the *Markman* hearing, both parties agreed to construe “singe data” as “single data set,” acknowledging the discrepancy as attributable to a typographical error. Tr. at 75:7–11 (“[THE GOVERNMENT]: We think it’s indefinite under either whether the function is into a single data or a single data set. THE COURT: But for the purposes of construing, is it fair to assume that the lack of the word “data set” was typographical and the Court can read that into it? [THE GOVERNMENT]: We agree with such a modification.”); Tr. at 74:23–75:1: (“THE COURT: . . . Mr. O’Rourke, you asked the Court to construe single data as single data set as it was just a typographical error? [PLAINTIFFS]: Yes, [y]our Honor.”). Substantively, plaintiffs contend the government’s proposal to include “into a single data” in the “means for combining” term is improperly narrow because the term recites a result of the limitation, rather than the function. Pls’ Indef. Reply at 6 (citing *Lockheed*, 324 F.3d at 1319). In *Lockheed*, the Federal Circuit construed a means-plus-function claim which recited in part:

means for rotating said wheel in accordance with a predetermined rate schedule which varies sinusoidally over the orbit at the orbital frequency of the satellite whereby the attitude of said satellite is offset in response to the effect of said rotating wheel by the direction of the pitch axis being changed with respect to said momentum vector, the direction of said pitch axis with respect to the inclined orbit normal varying sinusoidally at the orbital frequency to null said roll pointing error due to said orbit inclination, the momentum vector being maintained perpendicular to the plane of the geo-synchronous orbit to null said yaw pointing error due to said orbit inclination

Lockheed, 324 F.3d at 1315 (quoting U.S. Pat. No. 4,084,772 at col. 10 ll. 14–30 (filed Jan 28, 1976)). The Federal Circuit found the “whereby clause” “merely state[d] the result of the limitations in the claim and add[ed] nothing to the substance of the claim.” *Id.* at 1319 (citing *Tex. Instruments*, 988 F.2d at 1172). The Federal Circuit further found, however, the district court erred by construing the function as merely “rotating said wheel,” instead determining the claim’s function properly included “rotating said wheel in accordance with a predetermined rate schedule which varies sinusoidally over the orbit at the orbital frequency of the satellite.” *Id.* Term 5’s clause similarly is not limited to merely “combining the first markup document with the second markup document” alone. Like “predetermined rate schedule” in *Lockheed*, “combining . . . into a single data [set]” does not disclose a byproduct of the function; rather it

discloses a manner of combining. *See id.* Plaintiffs acknowledge there are “many different ways to combine.” Tr. at 83:10–12. Term 5’s combination of markup documents “into a single data set” is one of these “many different ways.” *Id.* Like the expanded functionality in *Lockheed*, the term’s function is not merely “combining” but “combining . . . into a single data [set].” Term 5’s function is accordingly limited by the clause “into a single data [set].”¹⁴ *See Lockheed*, 324 F.3d at 1319.

ii. Whether a general purpose computer can perform the term’s function

Having defined the term’s function, the Court next turns to whether the term is supported by sufficient structure, beginning with whether a *Katz* exception applies. Plaintiffs assert the “means for combining” limitation is definite because a general-purpose computer is capable of performing the “combining” functionality, and therefore no algorithmic support is necessary under *Katz*. Tr. at 75:23–25. In *Katz*, the Federal Circuit instructed a specification does not need to disclose an algorithm if a general-purpose computer is capable of performing the claimed functionality without “special programming.” *See Katz*, 639 F.3d at 1315–16 (finding “the functions of ‘processing,’ ‘receiving,’ and ‘storing’ [were] coextensive with the structure disclosed, i.e., a general purpose processor”). According to plaintiffs, “[i]t’s a very basic thing to put two data sets together.” Tr. at 103:11–12. In *EON*, however, the Federal Circuit explained “special programming” as denoted in *Katz* “does not denote a level of complexity,” rather it instead “includes any functionality that is not ‘coextensive’ with a microprocessor or general purpose computer.” *EON*, 785 F.3d at 623 (citing *Katz*, 639 F.3d at 1316). Under *EON*, disclosing very basic technology alone is therefore not sufficient to qualify for a *Katz* exception. Indeed, as plaintiffs acknowledged, there are “many different ways to combine.” Tr. at 83:10–12. Even a brief review of the specification indicates the patent recites multiple ways of “combining” which require specialized programming. For example, plaintiffs cite column 36, lines 9–40 as structural support. *See* Rev. J. Cl. Constr. at 15. This section describes an embodiment wherein:

[a] “chart view” transforms, formats, manipulates, and displays data stored in [multiple] markup documents using the attributes describing the meaning of the data. . . .

As an example, the chart view automatically determines when a first series is in the “U.S. dollars” and the second series is in “French francs”; it may automatically place them on separate axes or automatically translate the units.

’816 Patent at col. 36 ll. 9–40. Even assuming, *arguendo*, this passage supports combining markup documents including U.S. dollars and French francs into a single data set, the combination of dollars and francs so as to “transform[], format[], manipulate[], and display[]”

¹⁴ In cases where the Federal Circuit has found a function was not limited by terms in a means-plus function claim, the terms have typically appeared within a separate clause, such as a “wherein” clause. *See e.g., Lockheed Martin Corp. v. Space Sys./Loral, Inc.*, 324 F.3d 1308, 1315 (Fed. Cir. 2003) (analyzing a “whereby” clause); *BBA Nonwovens Simpsonville, Inc. v. Superior Nonwovens, LLC.*, 303 F.3d 1332 (Fed. Cir. 2002) (analyzing a “so that” clause). The absence of a similar clause in this case, while not dispositive, supports a close connection between the elements “combining” and the “into a single data [set].” *See* ’816 Patent col. 58 ll. 1–17.

the data via “attributes describing the meaning of the data,” *id.*, requires special programming beyond the functions of a general-purpose computer under the narrow *Katz* exception. *See EON*, 785 F.3d at 621–23. Specialized programming is accordingly necessary to dictate which of the “many different ways to combine” is invoked here. *See* Tr. at 83:10–12. Term 5 is accordingly not subject to a *Katz* exception and must be supported by sufficient algorithmic structure in the specification.¹⁵ *See EON*, 785 F.3d at 621–23.

iii. Whether adequate algorithmic structure supports the term’s function

The Court next assesses whether Term 5’s “combining” functionality is supported by adequate algorithmic structure. *See Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1367 (Fed. Cir. 2008). “[A] means-plus-function clause is indefinite if a person of ordinary skill in the art would be unable to recognize the structure in the specification and associate it with the corresponding function in the claim.” *Noah Sys.*, 675 F.3d at 1312 (quoting *AllVoice Computing PLC v. Nuance Commc’ns., Inc.*, 504 F.3d 1236, 1241 (Fed. Cir. 2007)). The specification may disclose the algorithm “in any understandable terms including as a mathematical formula, in prose, . . . or as a flow chart, or in any other manner that provides sufficient structure.” *Finisar Corp. v. DirecTV Grp., Inc.*, 523 F.3d 1323, 1340 (Fed. Cir. 2008) (internal citation omitted). Simply disclosing software, however, “without providing some detail about the means to accomplish the function[,] is not enough.” *Id.* at 1340–41 (citation omitted). A specification disclosing only a partial algorithm—one failing to disclose all of the functions—will be treated as not providing an algorithm at all. *Noah Sys.*, 675 F.3d at 1318 (“Given the purpose for requiring disclosure of an algorithm . . . [when] the specification discloses an algorithm for only one, or less than all, of those functions, we must analyze the disclosures as we do when no algorithm is disclosed.”). If there is no disclosed algorithm, “the inquiry is complete and the claims are indefinite pursuant to [35 U.S.C.] § 112(f).” *CellCast Techs., LLC v. United States*, 150 Fed. Cl. 353, 380 (2020) (citing *EON Corp.*, 785 F.3d at 624). Absent a *Katz* exception, plaintiffs’ lack of algorithm supporting the recited “combining” renders Term 5 indefinite. *Katz*, 639 F.3d at 1315.

Plaintiffs agree the specification does not provide a mathematical formula for “combining.” Tr. at 94:16–18 (“[PLAINTIFFS]: If an algorithm is a mathematical formula for these steps, the patent doesn’t teach [a] mathematical formula for doing these steps.”). Despite the lack of a mathematical formula, plaintiffs assert the specification discloses a “series of steps” sufficient to act as an algorithm. Tr. at 79:11–16 (“[PLAINTIFFS:] [I]f you say . . . what is an algorithm, . . . [it’s] a series of steps, . . . [and] that’s disclosed very clearly in the specification and the figures.”). At oral argument, the Court asked plaintiffs “where does it talk about

¹⁵ At the *Markman* hearing, plaintiffs suggested the Court’s assessment for adequate algorithmic structure should be “an equities issue,” because the “patents were . . . written and filed going back to 1998,” which was before *WMS Gaming*, *Katz*, and *EON*. Tr. at 114:11–23; *see WMS Gaming, Inc. v. Int’l Game Tech.*, 184 F.3d 1339 (Fed. Cir. 1999); *In re Katz Interactive Call Processing Patent Litig.*, 639 F.3d 1303 (Fed. Cir. 2011); *EON Corp. IP Holdings LLC v. AT&T Mobility LLC*, 785 F.3d 616 (Fed. Cir. 2015). It is unclear what plaintiffs mean by an “equities issue,” as sufficient disclosure is not a question of equity. Further, the Court applies caselaw currently binding on the Court, rather than precedent at the time of filing. *Fresnius USA, Inc. v. Baxter Int’l, Inc.*, 721 F.3d 1330, 1345 (Fed. Cir. 2013) (“[T]he general rule . . . [is a] court must apply the law in effect at the time it renders its decision . . .” (quoting *Thorpe v. Hous. Auth.*, 393 U.S. 268, 281 (1969))).

processing and combining to create [a] single document?” Tr. at 88:2–4. After looking through the patent, plaintiffs cited Figure 7A and column 30, lines 46–55 for support. Tr. at 90:21–91:7. This section of the specification states in part:

When more than one data document is input, their data fields must be correlated before they can be presented together in a common view. The X-value transformer 710 determines what adjustments have to be made, and then accomplishes them.

’816 Patent col. 30, ll. 53–57. Plaintiffs allege the passage discloses “putting the documents together . . . in a view.” Tr. at 91:7. Plaintiffs describe the algorithmic support from this passage, however, as “just [disclosing] off-the-shelf software that says, [‘]okay, sort it this way, sort it that way.[’]” Tr. at 91:23–24. The Federal Circuit has clarified even off the shelf software requires algorithmic support. *See EON*, 785 F.3d at 623 (“[T]he district court erred in holding that ‘special programming’ does not encompass commercially available off-the-shelf software. . . . [A] general purpose computer becomes a special purpose computer when loaded with the special programming, so a general purpose computer or microprocessor no longer lends sufficient structure to the claim.”); Tr. at 106:1–6 (“[THE COURT:] [Do] plaintiff[s] have any case where there was off-the-shelf software utilized and no algorithm required? [PLAINTIFFS]: I don’t believe we’ve cited anything beyond *Katz* and *EON*, the cases in our brief. THE COURT: So you’re not aware of any? [PLAINTIFFS]: Sitting here now, no.”); *see also supra* Section VII.B.2.ii (finding Term 5 is not subject to a *Katz* exception). Term 5 therefore requires more than off-the-shelf software as structural support for “combining [a] first markup document and [a] second markup document into a single [data set].” *Noah Sys.*, 675 F.3d at 1312, 1318.

Plaintiffs ask the Court to view column 30 in conjunction with Figure 10 as an example of presenting changed numbers in a common view. Tr. at 92:23–93:19. Figure 10 is reproduced below:

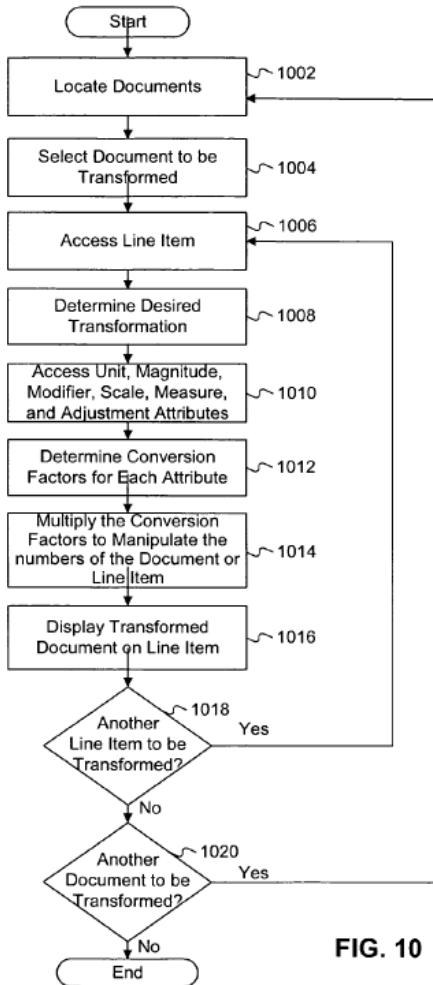


FIG. 10

'816 Patent fig.10. Additionally, column 30 states:

When more than one data document is input, their data fields must be correlated before they can be presented together in a common view. The X-value transformer 710 determines what adjustments have to be made, and then accomplishes them.

Id. col. 30 ll. 53–57. Plaintiffs contend the specification’s disclosure of “data fields [which] must be correlated before they can present together in a common view” and the “X value transformer determin[ing] what adjustments have to be made, and then accomplish[ing] them.” are equivalent to Figure 10’s step 1016: “display transformed document on line item.” Tr. at 92:23–93:19. While these sections disclose examples of “determin[ing] what adjustments have to be made,” “accomplish[ing] [the changes],” and “present[ing] [documents],” ’816 Patent col. 30 ll. 53–57, the examples are described, at best, at the same level of generality as the word “combining” itself—the specification includes no algorithmic disclosure indicating how the combining occurs.

Plaintiffs lastly cite to Figures 11 and 12 as support for the “combining” functionality. Tr. at 93:22–25, 96:23:97–12. Figure 11 is reproduced below:

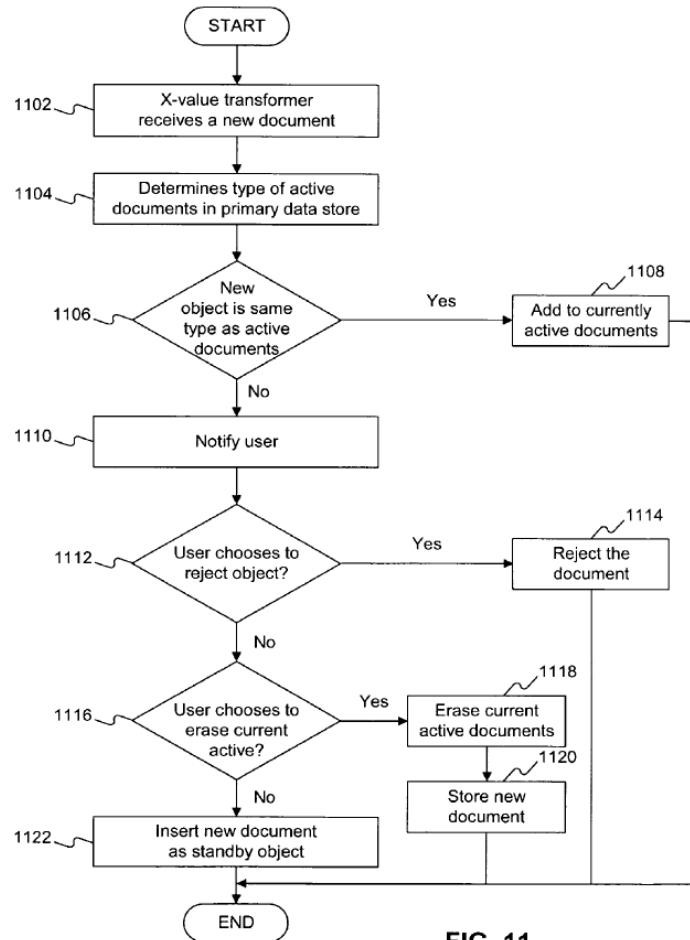


FIG. 11

'816 Patent fig.11. Figure 11, according to plaintiffs, "could [show combining] toward the bottom step . . . [b]ecause there's talk about receiving new documents and inserting the new document as a standby object.". Tr. at 96:23–97:3. Figure 11 provides the steps of "insert new document as standby object" (step 1122), "store new document" (step 1120), and "add to currently active document" (step 1108) as alternative last steps. *See* '816 Patent fig.11. None of these three steps provides clarity regarding how "combining" two documents could occur. Similarly, Figures 12A–C provide snapshots of a user interface providing, at best, a graph with multiple data sets already combined. *See* '816 Patent Figs. 12A–12C. The corresponding disclosure for these figures provides no additional clarity: "As shown on FIG. 12A, the X-Y plot 1202 displays the selected line item 1206, and the legend 1204 changes as the line item selection changes. The FIGS. 12B and 12C show the X-Y plots 1202 resulting from the selection of different line items 1206 in the tree view 720." '816 Patent col. 33 ll. 3–8. This section only discloses displaying data on an X-Y plot and does not describe any combining functionality. The outputs of the "combining" function in Figures 12A–C highlight the issue—there are "many different ways to combine," Tr. at 83:10–12, which could potentially permit display of a user interface with various plotted data sets, yet neither the term nor the specification discloses an algorithm for doing so. Plaintiffs have not identified any algorithmic disclosure supporting the "combining" function as claimed. The specification recites all steps at the same level of

generality as “combine” without further detail, and the term therefore lacks adequate algorithmic structure. *See Net MoneyIN, Inc.*, 545 F.3d at 1367 (“[A] means-plus-function claim element for which the only disclosed structure is a general purpose computer is invalid if the specification fails to disclose an algorithm for performing the claimed function.”).

The Court finds “means for combining the first markup document and the second markup document into a single data” is indefinite for lacking sufficient algorithmic structure. *Noah Sys.*, 675 F.3d at 1312. A PHOSITA “would be unable to recognize the structure in the specification and associate it with the corresponding function in the claim.” *Id.* (citing *AllVoice Computing PLC*, 504 F.3d at 1241). The Court accordingly adopts the following final construction: “Indefinite.”

Plaintiffs’ Proposed Construction	Defendant’s Proposed Construction
To be construed under § 112 ¶ 6. <u>Function</u> : Combining the first markup document and the second markup document. <u>Structure</u> : Primary data store; fig.7, box 712; fig.8, line 810; fig.11; fig.13; col. 19 l. 66–col. 20 l. 3; col. 31 ll. 4–30; col. 33 ll. 9–59; col. 35 l. 50–col. 36 l. 40.	To be construed under § 112, ¶ 6. <u>Function</u> : Combining the first markup document and the second markup document into a single data. <u>Structure</u> : Undisclosed. Term is indefinite.
Court’s Final Construction	
Indefinite for lack of structure. <u>Function</u> : “combining the first markup document and the second markup document into a single dataset” <u>Structure</u> : Undisclosed.	

VIII. Disputed Claim Term #6: “means for processing at least a part of the first markup document and at least a part of the second markup document, resulting in a single markup document”

Plaintiffs’ Proposed Construction	Defendant’s Proposed Construction
To be construed under § 112, ¶ 6. <u>Function</u> : Processing at least a part of the first markup document and at least a part of the second markup document, resulting in a single markup document. <u>Structure</u> : Primary data store; fig.7, box 712; fig.8, line 810; fig.11; fig.13; col. 18 ll. 25–30; col. 29 ll. 37–63; col. 31 l. 45–col. 32 l. 25.	To be construed under § 112, ¶ 6. <u>Function</u> : Processing at least a part of the first markup document and at least a part of the second markup document, resulting in a single markup document. <u>Structure</u> : Undisclosed. Term is indefinite.

The government disputes the construction of this claim term in claim 18 of the '383 Patent. Rev. J. Cl. Constr. at 40.

The following claim limitation highlights selected usage of the term in context:

An apparatus, comprising: means for processing at least a part of the first markup document and at least a part of the second markup document, resulting in a single markup document;

'383 Patent col. 146 ll. 42–44 (emphasis added).

At the *Markman* hearing, both parties agreed “means for processing” and “means for combining” should be construed similarly. Tr. at 108:3–10 (“THE COURT: And would you agree then that the means for processing should be construed similarly to the means for combining, that the terms should be construed the same? [PLAINTIFFS]: Yes, very much, very similar. . . . [THE GOVERNMENT]: We agree that Terms 5 and 6 should be construed in the same fashion.”). Consistent with the parties’ agreement Terms 5 and 6 should be construed similarly, the Court finds “means for processing at least a part of the first markup document and at least a part of the second markup document, resulting in a single markup document” is indefinite for lacking sufficient algorithmic structure. *See supra* Section VII. The Court accordingly adopts the following final construction: “Indefinite.”

Plaintiffs’ Proposed Construction	Defendant’s Proposed Construction
To be construed under § 112, ¶ 6. <u>Function</u> : Processing at least a part of the first markup document and at least a part of the second markup document, resulting in a single markup document. <u>Structure</u> : Primary data store; fig.7, box 712; fig.8, line 810; fig.11; fig.13; col. 18 ll. 25–30; col. 29 ll. 37–63; col. 31 l. 45–col. 32 l. 25.	To be construed under § 112, ¶ 6. <u>Function</u> : Processing at least a part of the first markup document and at least a part of the second markup document, resulting in a single markup document. <u>Structure</u> : Undisclosed. Term is indefinite.
Court’s Preliminary Construction	
Indefinite for lack of structure. <u>Function</u> : “[p]rocessing at least a part of the first markup document and at least a part of the second markup document, resulting in a single markup document” <u>Structure</u> : Undisclosed.	
Court’s Final Construction	
Indefinite for lack of structure.	

Function: “[p]rocessing at least a part of the first markup document and at least a part of the second markup document, resulting in a single markup document”

Structure: Undisclosed.

IX. Disputed Claim Term #7: “means for identifying a first markup document including first numerical values and first tags reflecting first characteristics of the first numerical values associated with a first unit of measure, and a second markup document including second numerical values and second tags reflecting second characteristics of the second numerical values associated with a second unit of measure, wherein the first tags and the second tags each include computer-readable semantic tags that describe a semantic meaning of a corresponding one of at least one of the first numerical values or the second numerical values via a computer-readable tagging association therebetween, where the first characteristics of the first numerical values associated with the first unit of measure are different from the second characteristics of the second numerical values associated with the second unit of measure”

Plaintiffs' Proposed Construction	Defendant's Proposed Construction
<p>To be construed under § 112, ¶ 6.</p> <p><u>Function</u>: Identifying a first markup document including first numerical values and first tags reflecting first characteristics of the first numerical values associated with a first unit of measure, and a second markup document including second numerical values and second tags reflecting second characteristics of the second numerical values associated with a second unit of measure.</p> <p><u>Structure</u>: Reader. <i>See, e.g.</i>, Fig.7A box 704; Fig.8, step 802; col. 17, l. 27–col. 18, l.7; col. 28 ll. 1–31; col. 29 ll. 3–11.</p>	<p>To be construed under § 112, ¶ 6.</p> <p><u>Function</u>: Identifying a first markup document including first numerical values and first tags reflecting first characteristics of the first numerical values associated with a first unit of measure, and a second markup document including second numerical values and second tags reflecting second characteristics of the second numerical values associated with a second unit of measure, wherein the first tags and the second tags each include computer- readable semantic tags that describe a semantic meaning of a corresponding one of at least one of the first numerical values or the second numerical values, via a computer- readable tagging association therebetween, where the first characteristics of the first numerical values associated with the first unit of measure are different from the second characteristics of the second numerical values associated with the second unit of measure.</p> <p><u>Structure</u>: Undisclosed.</p> <p>Term is indefinite.</p>

The government disputes the construction of this claim term in claim 18 of the '383 Patent. Rev. J. Cl. Constr. at 37–38.

The following claim limitation highlights selected usage of the term in context:

An apparatus, comprising: means for identifying a first markup document including first numerical values and first tags reflecting first characteristics of the first numerical values associated with a first unit of measure, and a second markup document including second numerical values and second tags reflecting second characteristics of the second numerical values associated with a second unit of measure wherein the first tags and the second tags each include computer-readable semantic tags that describe a semantic meaning of a corresponding one of at least one of the first numerical values or the second numerical values via a computer-readable tagging association there between, where the first characteristics of the first numerical values associated with the first unit of measure are different from the second characteristics of the second numerical values associated with the second unit of measure;

'383 Patent col. 146 ll. 16–33 (emphasis added).

A. Parties' Arguments

Plaintiffs again assert the government's arguments are contrary to *Lockheed*, contending the “wherein” clause merely states a result of the claimed function. Pls.' Indef. Br. at 22 (citing *Lockheed Martin Corp v. Space Systems/Loral, Inc.*, 324 F.3d 1308, 1324 (Fed. Cir. 2003)). Additionally, plaintiffs underline the government's assertion of invalidity based on algorithm and argue “no algorithm is required for a claim term like ‘identifying’ under the *Katz* decision.” *Id.* (citing *In re Katz Interactive Call Processing Patent Litig.*, 639 F.3d 1303, 1316 (Fed. Cir. 2011)). e-Numerate's expert contends a PHOSITA would understand “a reader or other component used to receive a document is operable using a general-purpose computer without any special programming,” and therefore no algorithm is necessary. Smith Decl. ¶ 51.

The government contends the relevant function of this term includes the full clause after the “means for” language of the term. Gov't's Resp. Indef. Br. at 21. The government argues *Lockheed* cautions against inappropriately broadening a term by omitting limitations. *Id.* at 22 (citing *Lockheed Martin*, 324 F.3d at 1324). In contrast to plaintiffs' position, the government contends, for there to be a need to “‘automatically transform[]’ to ‘have a common unit of measure[,]’ the ‘means for identifying’ would first need to identify or recognize the different characteristics of the values of the two markup documents and[,] therefore, [the government's] interpretation is . . . appropriate.” *Id.* The government's expert contends plaintiffs' proposed function is insufficient, and a PHOSITA would define “identifying” in this term as “‘identifying’ the markup documents by determining that they have the recited values, characteristic tags, semantic tags, and requiring different characteristics of the values.” Martin Decl. ¶¶ 113–14. Additionally, the expert states: “e-Numerate has not provided a basis for a person of ordinary skill to credit the ‘including’ clauses imposing constraints on the two markup documents

(namely, that they include numerical values and tags reflecting characteristics of the numerical values associated with a unit of measure) while omitting the ‘wherein’ clauses that impose further constraints on the two markup documents (namely, that of the semantic tags and requiring different characteristics of the values).” *Id.* at 114.

The government next alleges plaintiffs’ alleged structural support via Document Type Definition (DTD) conformance and subsequent error checking is insufficient, contending a DTD conformance “cannot enforce a requirement that tags be ‘semantic’ tags.” Gov’t’s Resp. Indef. Br. at 24. The government accordingly argues the specification fails to disclose an algorithm for performing the term’s function. *Id.* at 25. The government further rejects plaintiffs’ reliance on a “reader.” Gov. Sur-Reply Indef. Br. at 10. According to the government, “[t]he reader [likewise] cannot enforce the claim’s requirement that the tags are ‘semantic tags.’” *Id.* The government asserts plaintiffs are proposing a “black box” to perform the function without providing any algorithmic support. *Id.* Accordingly, the government argues this term is indefinite. *Id.*

B. Analysis

1. The Court’s Preliminary Construction

Before oral argument, the Court provided the Court’s preliminary construction below. The Court determined, preliminarily, the term’s “wherein” clause limited the term’s function. *See Lockheed*, 324 F.3d at 1319. The specification did not disclose adequate algorithmic structure to support the term’s means-plus-function limitation, and a general-purpose computer could not perform the functionality without specialized programming. *See EON Corp. IP Holdings LLC v. AT&T Mobility LLC*, 785 F.3d 616, 622–23 (Fed. Cir. 2015) (quoting *Katz*, 639 F.3d at 1316). Without adequate support for the term’s function, the Court found the means-plus-function term to be indefinite. *See id.*; *Noah Sys., Inc. v. Intuit Inc*, 675 F.3d 1302, 1312 (Fed. Cir. 2012).

Court’s Preliminary Construction
Indefinite for lack of structure.
<u>Function</u> : “means for identifying a first markup document including first numerical values and first tags reflecting first characteristics of the first numerical values associated with a first unit of measure, and a second markup document including second numerical values and second tags reflecting second characteristics of the second numerical values associated with a second unit of measure, wherein the first tags and the second tags each include computer-readable semantic tags that describe a semantic meaning of a corresponding one of at least one of the first numerical values or the second numerical values via a computer-readable tagging association therebetween, where the first characteristics of the first numerical values associated with the first unit of measure are different from the second characteristics of the second numerical values associated with the second unit of measure”
<u>Structure</u> : Undisclosed.

2. The Court's Final Construction

The Court's final construction requires assessing three questions: (1) whether the function of Term 7 is limited by its "wherein" clause, *see Lockheed*, 324 F.3d at 1319; (2) whether a general purpose computer can perform the function and the specification need not disclose an algorithm; and (3) if the function cannot be performed by a general purpose computer, whether the specification discloses sufficient structure to support the claimed functionality, *see EON*, 785 F.3d at 622–23 (quoting *Katz*, 639 F.3d at 1316).

i. Whether the term's function includes the "wherein" clause

To determine whether Term 7 is indefinite, the Court first assesses whether the term's "wherein" clause limits the claimed function. In a means-plus-function term, a "wherein" clause narrows a recited function only if it substantively limits the term, rather than "merely stat[ing] the result of the limitations in the claim." *Lockheed*, 324 F.3d at 1319 (citing *Tex. Instruments Inc. v. ITC*, 988 F.3d 1165, 1172 (Fed. Cir. 1993)). The government contends the "wherein" clause is "essential as a description of [the term's] function." Gov't's Resp. Indef. Br. at 22. Specifically, the government alleges the function of "identification" is limited by the "wherein" clause's disclosure of (1) "semantic tags" and (2) values with "different characteristics." *Id.* Although e-Numerate's brief does not include a technical response to the government's position, at oral argument, plaintiffs stated the "wherein" clause is not "part of a claim function . . . [but only] describes the tags themselves." Tr. at 123:3–4. Plaintiffs contend the "wherein" clause "should not be included in the function . . . [b]ecause it's talking about the tags themselves and not the means for identifying." Tr. at 121:20–24.

In order for the "wherein" clause to limit the term's function, the terms must not merely state a result of the function. The parties agree the term's primary function is "identifying." *See* Tr. at 130:7–13; Rev. J. Cl. Constr. at 37–38. In their proposed constructions, however, both parties agree additional elements in the term limit the "identifying" function:

identifying a first markup document including *first numerical values* and *first tags* reflecting *first characteristics* of the *first numerical values* associated with a *first unit of measure*, and a second markup document including *second numerical values* and *second tags* reflecting *second characteristics* of the *second numerical values* associated with a *second unit of measure*

Rev. Joint Cl. Constr. Statement Ex. A at 36. As both parties propose constructions including the above language, the emphasized terms above therefore undisputedly limit the term's "identifying" functionality. Without "first tags," "first characteristics," and "first unit of measure," the identification would not occur as claimed—i.e., identifying a markup document with the claimed elements. Similarly, the terms following "wherein" also affect the claim's manner of identification. The claimed terms require identification of a markup document including: (1) "*first tags* and . . . *second tags* each includ[ing] computer-readable *semantic tags* that describe a *semantic meaning*"; and (2) "*the first characteristics of the first numerical values* associated with the *first unit of measure* [that] are different from the *second characteristics* of the *second numerical values* associated with the *second unit of measure*." '383 Patent col. 146 ll.

25–34. The manner in which the claim identifies a markup document is therefore dependent upon the “wherein” clause, and the terms following the clause do not merely state a result. Instead, the manner of “identifying” in Term 7 is itself limited by the “semantic tags” and “different characteristics” following the “wherein” clause. *See Lockheed*, 324 F.3d at 1319.

Plaintiffs’ response to the Court’s questions at oral argument confirm the Court’s identified function *supra*. The Court asked “[h]ow can the apparatus transform a common unit of measure if it first does not identify the data is not in a common unit of data?” Tr. at 123:12–14. Plaintiffs responded “it could do it, but the issue is really does that have to be in the function or is it the structure[?]” Tr. at 123:15–18. Plaintiffs’ admission the claim “could do it,” however, implies the “wherein” clause describes function, rather than—as plaintiffs propose—structure. *Id.* (emphasis added). If the “wherein” clause merely described structure alone, it would not describe an apparatus *doing* anything—it would only describe structural elements. *See Lockheed*, 324 F.3d at 1319 (cautioning a claim’s function may not “be improperly broadened by ignoring the clear limitations contained in the claim language.”). Structure itself does not necessarily provide function. The “wherein” clause therefore appropriately limits the “identifying” function. *See id.*

Plaintiffs contend *Lockheed* and *BBA Nonwovens* counsel against construing “wherein” clauses to limit a claim’s function. As discussed *supra* the Federal Circuit also construed a means-plus-function claim in *Lockheed*. *Lockheed*, 324 F.3d at 1315 (quoting U.S. Pat. No. 4,084,772 col. 10 ll. 14–30 (filed Jan 28, 1976)); *see supra* Section VII.B.2.i. The Federal Circuit found the “whereby clause” there “merely state[d] the result of the limitations in the claim [and] add[ed] nothing to the substance of the claim.” *Id.* at 1319 (citing *Tex. Instruments*, 988 F.2d at 1172). In *Lockheed*, the “whereby” clause described the result of the “rotating” function: a satellite’s attitude “is offset in response to the effect of said rotating wheel.” *See id.* As the government noted at oral argument, the “whereby” clause in *Lockheed* “just tells a byproduct of what [the function’s] doing.” Tr. at 128:1–2. The “wherein” clause in Term 7, on the other hand, does not describe a result—it limits the function. The “wherein” clause in Term 7 describes the manner in which a markup document is identified—by using semantic tags that describe semantic meaning and first characteristics different from second characteristics. ’383 Patent col. 146 ll. 17–34 (“[I]dentifying . . . wherein the first tags and the second tags each include computer-readable semantic tags that describe a semantic meaning . . . where the first characteristics . . . are different from the second characteristics . . .”)

In *BBA Nonwovens* the Federal Circuit similarly assessed a means-plus-function claim which recited:

d) *corona means cooperating with said attenuator and positioned for electrostatically charging the filaments so that repelling forces are induced in the filaments to more uniformly spread the filaments before they are deposited on said collection surface to form a web.*

BBA Nonwovens Simpsonville, Inc. v. Superior Nonwovens, LLC, 303 F.3d 1332, 1343 (Fed. Cir. 2002) (emphasis added) (quoting U.S. Pat. No. 5,397,413 col. 9 ll. 32–37 (filed Apr. 10, 1992)). The Federal Circuit interpreted the claim’s function as not including the “so that” limitation:

“for electrostatically charging the filaments . . . before they are deposited on said collection surface to form a web.” *Id.* at 1344. “[T]he [whole] expression following the word ‘positioned,’” according to the Federal Circuit, “describes where the corona means is located and is a separate limitation not subject to section 112, paragraph 6[,] [because] [w]hat the ‘corona means’ is and where it is located are two different things.” *Id.* In *BBA Nonwovens*, the language “before [the filaments] are deposited . . . to form a web” described the result of the “corona means” and therefore did not limit the function, *see BBA Nonwovens*, 303 F.3d at 1343–44, while the “wherein” of Term 7 does not state a result but instead *describes* the functionality of “identifying.” *Lockheed*, 324 F.3d at 1315.

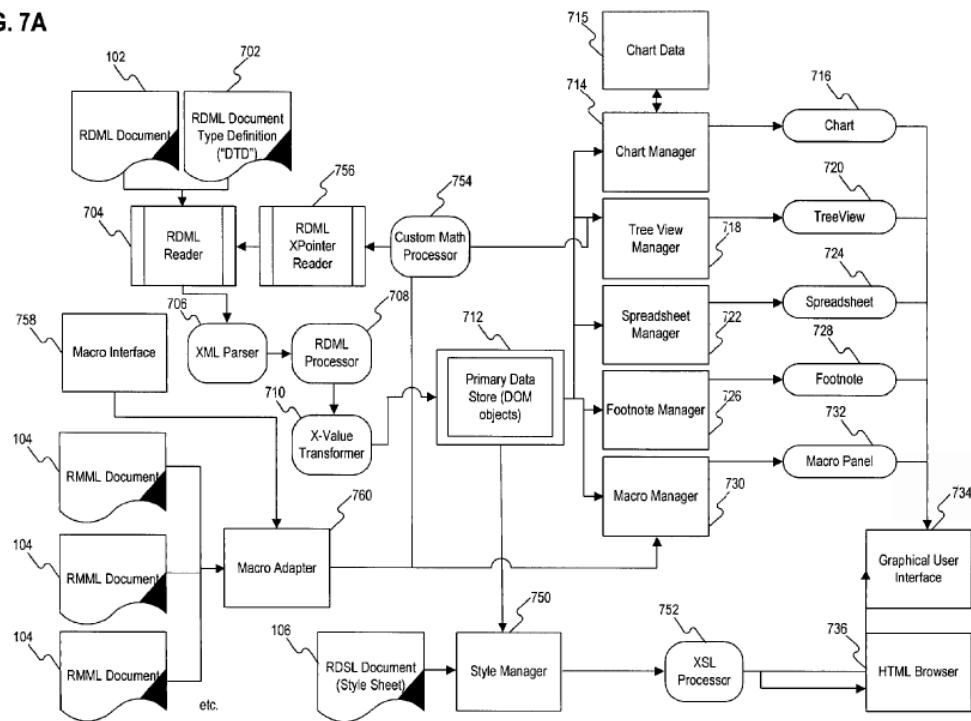
ii. Whether a general purpose computer can perform the term’s function

Next, having determined the “wherein” portion of the term limits the “identifying” function, the Court turns to structure. Plaintiffs again allege a *Katz* exception, contending “no algorithm is required for a claim term like ‘identifying.’” Pl.’s Indef. Br. at 22; Tr. at 144:14–19. The government implies the term “identifying” can never fall under a *Katz* exception. Tr. at 150:15–151:10 (“THE COURT: Generally speaking, is there usage of the word ‘identifying’ that would fall under the *Katz* exception? . . . [THE GOVERNMENT:] Identifying something, you need to read something, you need to look for something that you know beforehand and then you have to check if it’s there. I don’t see how you could get around having those steps.”). The Court does not need to reach the government’s broad conclusion, however. In this case, the term requires more than simple identification or reading of a markup document. Plaintiffs’ own proposed construction includes identification of a markup document including elements such as “first numerical values” and “tags reflecting first characteristics of . . . numerical values associated with a . . . unit of measure.” Rev. J. Cl. Constr. at 37–38. The “wherein” clause of the term further requires identification based on “semantic tags that describe a semantic meaning” and “the first characteristics of the first numerical values associated with the first unit of measure . . . different from the second characteristics of the second numerical values associated with the second unit of measure.” ’383 Patent col. 146 ll. 16–33. As identified above, these additional elements indicate the “identifying” is not “functionality . . . ‘coextensive’ with a microprocessor or general purpose computer.” *EON*, 785 F.3d at 623 (quoting *Katz*, 639 F.3d at 1316). Term 7 therefore is not subject to a *Katz* exception and must be supported by disclosed structure. *Id.*

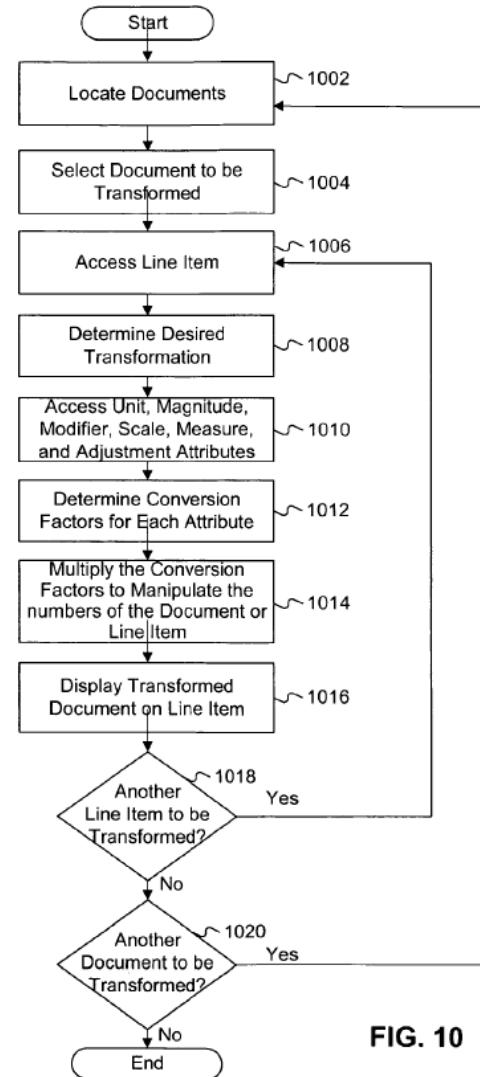
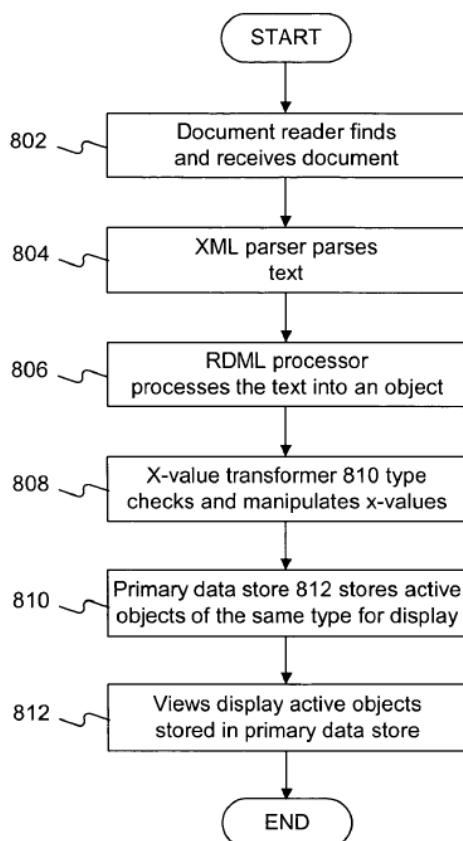
iii. Whether adequate algorithmic structure supports the term’s function

For Term 7 to be definite, the specification must describe an algorithm supporting the “wherein” clause. *See id.* Plaintiffs allege the specification discloses structure for a “reader,” which plaintiffs contend support the “identifying” functionality of Term 7. Tr. at 140:12–15 (“[THE COURT:] [I]s it fair to say that plaintiffs argue that the structure is the reader? [PLAINTIFFS:] Yes.”). At oral argument, plaintiffs cited Figures 7A, 8, and 10 as supporting the reader’s “identifying” algorithms. *See* Tr. at 140:21–141:7, 144:3–13. Figure 7A is reproduced below:

FIG. 7A



According to plaintiffs, the RDML reader (704) of Figure 7A “identifies” documents by “import[ing] [a markup document] and send[ing] it on down to the parser for further processing.” Tr. at 141:5–7. When pressed to identify where the specification discloses functionality addressing “units of measure,” plaintiffs alleged, “[t]hat would be in other figures.” Tr. at 143:22. The other figures, however, similarly fail to identify any steps of identification. Figures 8 and 10 are reproduced below:



Plaintiffs described these figures at oral argument:

Figure 8, first of all, shows the reader finds and receives the document and then passes it on to the parser. . . . That's in Step 802. But Figure 10 [says] . . . "locate documents" in the portal with step 1002. Select . . . document to be transformed. That would be both of them . . . Access [Unit] as one of the attributes in step 1010. Conversion factor for each attribute, and then it just goes right there, it goes down to the line.

Tr. at 144:4–13. Although Figure 10 and the corresponding description broadly disclose “determin[ing] desired transformations,” none of plaintiffs’ citations disclose “identifying” as claimed in Term 7. The ’383 Patent specification includes no discussion of “tags” with “characteristics of . . . numerical values associated with [a] . . . unit of measure.” ’383 Patent col. 146 ll. 16–33. Step 1010 of Figure 10 discloses “Access[ing] Unit, Magnitude, Modifier,

Scale, Measure, and Adjustment Attribute,” but there is no illustration or description equivalent to identifying “tags reflecting . . . characteristics . . . associated with . . . unit[s] of measure.” ’383 Patent fig.10. These “access[ing]” functions are insufficient to “clearly link[] or associate[] [the] structure to the function recited in the claim.” *Noah Sys.*, 675 F.3d at 1311 (quoting *B. Braun Med.*, 124 F.3d at 1424). The specification must disclose “an algorithm for performing the claimed function,” and the “access[ing]” functions merely “disclos[e] software . . . ‘without providing some detail about the means to accomplish the function.’” *Id.* at 1312 (quoting *Finisar Corp. v. DirecTV Grp., Inc.*, 523 F.3d 1323, 1340–41 (Fed. Cir. 2008)).

The corresponding description does not provide any additional clarity. The ’816 Patent specification discloses:

FIG. 10 illustrates steps used by the data viewer 100 to manipulate the numerical information in an RDML document 102 to produce a desired transformed display. . . . First, the data viewer 100 locates the RDML document 102 (step 1002). The document may be located either locally or online using a URL, the search engine 224 or any other technique. Next, the data viewer 100 selects and accesses the desired document 102 (step 1004). The data viewer 100 then accesses the line item that needs to be transformed (step 1006) and determines the desired transformations (step 1008). The desired transformations may be received from a user or may be determined by the data viewer 100 automatically to, for example, accommodate the addition of a new document 102 to a display of a current one. The data viewer accesses the unit, magnitude, modifier, scale, measure and adjustment attributes of the document or line item to be transformed (step 1010). Using these attributes, the data viewer 100 determines the conversion factors, if any, for each (step 1012).

’383 Patent col. 24 ll. 30–47. This passage, however, merely indicates “accessing” rather than the “identifying” functionality of Term 7. The data viewer’s accessing “unit, magnitude, modifier, scale, measure and adjustment attributes,” *id.*, does not support *identifying* based on “tags reflecting . . . characteristics of . . . numerical values associated with [a] . . . unit of measure.” ’383 Patent col. 146 ll. 16–33. The specification, in fact, describes “locat[ing]” a document first and then “access[ing]” the document second, where the accessing—rather than the locating—is the only functionality related to “measure[ment] . . . attributes.” ’383 Patent col. 24 ll. 30–47. Accessing the disclosed variables, however, does not provide an algorithm with “some detail about the means to accomplish” the identification. *See Noah Sys.*, 675 F.3d at 1312 (quoting *Finisar Corp.*, 523 F.3d at 1340–41).

Even if the specification did describe basic identifying features, however, there is likewise no support for Term 7’s “wherein” clause limitations. The ’383 Patent, for example, discloses the term “semantic” three times, but none of these describe “identifying” based on semantic tags. *See* ’383 Patent col. 46 ll. 24–52; *see also* Gov’t’s Resp. Indef. Br. at 23–24 (“[A] DTD cannot enforce a requirement that tags be ‘semantic’ tags according to the construction that e-Numerate has proposed A DTD cannot enforce a requirement that an attribute ‘explains the meaning of the numerical values.’” (quoting App. to Pl.’s Indef. Br. Ex. B at 12–13, ECF No. 80-3 (’383 Patent Term 5))). Where the specification discloses “accessing” functionality,

these functions do not describe semantic “identif[ication].” *See* ’383 Patent col. 24 ll. 30–47 (“The data viewer accesses the unit, magnitude, modifier, scale, measure and adjustment attributes of the document . . .”). Without any disclosed algorithm, a PHOSITA would not recognize any structure supporting the means-plus-function term’s claimed functionality. The disclosure therefore fails to provide an algorithm describing how the “means for . . . identif[ication]” occurs in Term 7. *See Noah Sys.*, 675 F.3d at 1313.

As Term 7 is a means-plus-function term and is limited by its “wherein” clause, the term must be supported by disclosed structure or meet the requirements for a *Katz* exception. *See Lockheed*, 324 F.3d at 1315; *EON*, 785 F.3d at 623 (quoting *Katz*, 639 F.3d at 1316). It does not meet the requirements for a *Katz* exception. *See supra* Section IX.B.2.ii. Further, Term 7’s “identifying” functions are “specialized functions which cannot be accomplished absent specialized programing,” requiring the specification to provide adequate algorithmic disclosure. *See Noah Sys.*, 675 F.3d at 1315. The term’s specification fails to disclose structure sufficient to inform a PHOSITA of the “structure . . . associate[d] . . . with the corresponding function in the claim.” *Id.* at 1312. The Court therefore finds Term 7 is indefinite. *Id.* (“[A] means-plus-function clause is indefinite if a [PHOSITA] would be unable to recognize the structure in the specification and associate it with the corresponding function in the claim.”) (citation omitted).

Plaintiffs’ Proposed Construction	Defendant’s Proposed Construction
<p>To be construed under § 112, ¶ 6.</p> <p><u>Function:</u> Identifying a first markup document including first numerical values and first tags reflecting first characteristics of the first numerical values associated with a first unit of measure, and a second markup document including second numerical values and second tags reflecting second characteristics of the second numerical values associated with a second unit of measure.</p> <p><u>Structure:</u> Reader. <i>See, e.g.</i>, Fig.7A box 704; Fig.8, step 802; col. 17, l. 27–col. 18, l.7; col. 28 ll. 1–31; col. 29 ll. 3–11.</p>	<p>To be construed under § 112, ¶ 6.</p> <p><u>Function:</u> Identifying a first markup document including first numerical values and first tags reflecting first characteristics of the first numerical values associated with a first unit of measure, and a second markup document including second numerical values and second tags reflecting second characteristics of the second numerical values associated with a second unit of measure, wherein the first tags and the second tags each include computer- readable semantic tags that describe a semantic meaning of a corresponding one of at least one of the first numerical values or the second numerical values, via a computer- readable tagging association therebetween, where the first characteristics of the first numerical values associated with the first unit of measure are different from the second characteristics of the second numerical values associated with the second unit of measure.</p> <p><u>Structure:</u> Undisclosed.</p>

	Term is indefinite.
Court's Final Construction	
Indefinite for lack of structure.	
<p><u>Function</u>: “means for identifying a first markup document including first numerical values and first tags reflecting first characteristics of the first numerical values associated with a first unit of measure, and a second markup document including second numerical values and second tags reflecting second characteristics of the second numerical values associated with a second unit of measure, wherein the first tags and the second tags each include computer-readable semantic tags that describe a semantic meaning of a corresponding one of at least one of the first numerical values or the second numerical values via a computer-readable tagging association therebetween, where the first characteristics of the first numerical values associated with the first unit of measure are different from the second characteristics of the second numerical values associated with the second unit of measure”</p> <p><u>Structure</u>: Undisclosed</p>	

X. Dispute Claim Term #8: “code for causing automatic transformation of at least a portion of the first or second numerical values of at least one of the first markup document or the second markup document, so that at least some of the first numerical values of the first markup document and at least some of the second numerical values of the second markup document have a common unit of measure”

Plaintiffs' Proposed Construction	Defendant's Proposed Construction
Not construed under § 112, ¶ 6.	This term is indefinite under 35 U.S.C. § 112, ¶ 6 because it claims a function but the specification fails to disclose definite structure for performing the claimed function.

The government disputes the construction of this claim term in claim 1 of the '383 Patent. Gov't's Suppl. Indef. Br. at 7

The following claim limitation highlights selected usage of the term in context:

A computer program product embodied on a non-transitory computer-readable medium comprising: . . . *code for causing automatic transformation of at least a portion of the first or second numerical values of at least one of the first markup document or the second markup document, so that at least some of the first numerical values of the first markup document and at least some of the second numerical values of the second markup document have a common unit of measure;*

'383 Patent col. 143 ll. 21–27 (emphasis added).

A. Parties' Arguments

The preliminary dispute for Terms 8–16 is whether a term reciting “code for” invokes

means-plus-function interpretation under 35 U.S.C. § 112, paragraph 6. In briefing these terms, the parties addressed the “code for” language in the ’748 Patent collectively and then, assuming means-plus-function applied, provided additional arguments on each term’s function and structure. *See, e.g.*, Pls.’ Indef. Br. at 26–34; Gov’t’s Resp. Indef. Br. at 29–32. The parties included additional arguments for “code for” terms appearing in the ’383 Patent via supplemental briefing. *See* Gov’t’s Suppl. Indef. Br.; Pls.’ Suppl. Indef. Br. The arguments for applying § 112, paragraph 6 overlap for the ’383 and ’784 Patents, and the Court accordingly addresses both in this section. *See* Pls.’ Suppl. Indef. Br. at 4–6; Gov’t’s Suppl. Indef. Br. at 7 (“A PHOSITA would understand that this term does not refer to any known structures . . .” (footnote omitted)). The government’s indefiniteness arguments rely solely on Terms 8–16 being means-plus function; because the Court finds § 112, paragraph 6 does not apply, *infra*, it is unnecessary to repeat the parties’ arguments on function and structural support.

Plaintiffs allege “code for” “is used in its normal, conventional sense” rather than as a “nonce word,” which would give rise to means-plus function interpretation. Pls.’ Indef. Br. at 31. A term not using the word “means” creates a rebuttable presumption the term is not means-plus-function, *Zeroclick, LLC v. Apple, Inc.*, 891 F.3d 1003, 1007 (Fed. Cir. 2018), and plaintiffs allege the government has not met its burden to prove otherwise. *Id.* (citing *Zeroclick*, 891 F.3d at 1007). For support, plaintiffs cite *Zeroclick*, where the Federal Circuit found a term reciting “user interface code” was not a means-plus-function term. *Id.* (citing *Zeroclick*, 891 F.3d at 1007). In this case, plaintiffs contend “[a] person of skill in the art . . . would conclude that the claimed inventions could be practiced using conventional programming languages available in the art at the time of the invention.” *Id.* at 32. Plaintiffs specifically point to the ’748 Patent’s appendices, which include code written in Microsoft Excel Visual Basic. *Id.* (citing ’748 Patent App. F–G). Lastly, plaintiffs contend because the ’816 and ’383 Patents explicitly include means-plus-function terms and the ’748 Patent instead uses “code for,” the doctrine of claim differentiation counsels in favor of finding the term is not means-plus-function. *Id.* at 33 (citing *Karlin Tech. Inc. v. Surgical Dynamics, Inc.*, 177 F.3d 968, 971–72 (Fed. Cir. 1999) (“[D]ifferent words or phrases used in separate claims are presumed to indicate that the claims have different meanings and scope.”)).

The government, in contrast, alleges the presumption against means-plus-function is overcome by intrinsic and extrinsic evidence. The government contends “code for” is a black box term absent of structure to perform the recited functions. Gov’t’s Resp. Indef. Br. at 30–31. According to the government, *Zeroclick* does not support plaintiffs’ position, as the Federal Circuit found “user interface code” references “specific . . . conventional graphical user interface programs or code.” *Id.* (quoting *Zeroclick*, 891 F.3d at 1008). The government states, if plaintiffs’ position is correct, “mere disclosure of the language used to write any particular code would be sufficient to avoid application of means-plus-function for any ‘code for’ claim element regardless of the nature of the code at issue.” *Id.* at 30. Instead, the government claims *Egenera* supports its position, wherein the Federal Circuit held the term “logic to” invoked means-plus-function because “‘logic’ meant only ‘a ‘general category of whatever may perform’ the function.’” *Id.* at 32 (quoting *Egenera, Inc. v. Cisco Sys., Inc.*, 972 F.3d 1367, 1374 (Fed. Cir. 2020)). The “code for” provision in Term 8, the government argues, is similar to the “logic to” term in *Egenera* because it “fail[s] to describe any definite structure or algorithm to perform the recited functions.” *Id.* at 31–32. The government lastly contests plaintiffs’ claim differentiation

argument, stating claims in other patents “say[] nothing about whether the instant claims including ‘code for’ ought to be treated as means-plus-function claiming,” and contending whether a claim is means-plus-function “is a question of law” which plaintiffs cannot opt-out of “by stating [their] ‘intent’ to bypass this framework.” *Id.* at 32 (citing *Howmedica Osteonics Corp. v. Wright Med. Tech., Inc.*, 540 F.3d 1337, 1347 (Fed. Cir. 2008)).

B. Analysis

1. The Court’s Preliminary Construction

Before oral argument, the Court provided the Court’s preliminary construction below. The Court determined, preliminarily, the term’s “code for” language results in a presumption § 112, paragraph 6 does not apply. *See Zeroclick*, 891 F.3d at 1007. The Court preliminarily found the government failed to present evidence and arguments sufficient to overcome the presumption. *See id.* As the government’s briefs provided little more than conclusory statements of indefiniteness, the Court found the claim was not indefinite. *See id.*; *Dyfan, LLC v. Target Corp.*, 28 F.4th 1360, 1368–69 (Fed. Cir. 2022) (“In determining whether software limitations . . . recite sufficient structure, we can look beyond the initial ‘code’ or ‘application’ term to the functional language to see if a [PHOSITA] would have understood the claim limitation as a whole to connote sufficiently definite structure.”).

Court’s Preliminary Construction
Not construed pursuant to § 112, ¶ 6.
In the alternative, similar to claim Term #3, not indefinite.
<u>Function</u> : “automatically transforming at least a portion of the first or second numerical values of at least one of the first markup document or the second markup document, so that at least some of the first numerical values of the first markup document and at least some of the second numerical values of the second markup document have a common unit of measure”
<u>Structure</u> : RDML data viewer (’748 Patent fig.10, col. 23 l. 61–col. 28 l. 67) and the X-value transformer (support at <i>id.</i> fig.11, col. 28 l. 43–col. 31 l. 5).

2. The Court’s Final Construction

To assess whether Term 8 is indefinite, the Court must first consider whether the “code for” provision invokes a means-plus-function construction under § 112, paragraph 6. The government acknowledges “a claim that does not use the words ‘means for’ is presumptively not in means-plus-function format.” Gov’t’s Resp. Indef. Br. at 29 (citing *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1349 (Fed. Cir. 2015)). At oral argument, the government also recognized “whether [§ 112, paragraph 6] is invoked is a question of law, and it’s a mere preponderance [standard].” Tr. at 187:5–13. In this case, the term’s “code for” language results in a presumption § 112, paragraph 6 does not apply. *Zeroclick*, 891 F.3d at 1007–08. The government can overcome this presumption only by showing, by a preponderance of the evidence, a PHOSITA would understand the term “to have a sufficiently definite meaning as the

name for structure.” *Id.* at 1007 (quoting *Williamson*, 792 F.4d at 1348); *Dyfan*, 28 F.4th at 1365–66; Tr. at 174:1–4 (“THE COURT: Well, . . . *Dyfan* reiterates that it’s the burden of the government in this case to rebut the presumption. [THE GOVERNMENT]: Correct.”). The government acknowledged “code for” does not always invoke means-plus-function, but “the inquiry is on a case-by-case basis.” Tr. at 173:24–25. The Court reviews both intrinsic and extrinsic evidence to assess whether the government has provided evidence sufficient to overcome the presumption Term 8 does not invoke § 112, paragraph 6. *See Zeroclick*, 891 F.3d at 1007 (“[T]he essential inquiry [is] ‘whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure.’” (quoting *Williamson*, 792 F.3d at 1348))

i. Whether Intrinsic Evidence Indicates “Code For” Invokes § 112, paragraph 6

Starting with the claim language, the government argues “code for” is a “black-box term” which “fails to recite any structure for performing [the claimed function].” Gov’t’s Resp. Indef. Br. at 30. The government analogizes this case to *Egenera*, *id.* at 31–32, where the Federal Circuit found the term “logic to modify” invoked § 112, paragraph 6 because the term provided no more than a “black box recitation of structure.” *Egenera*, 972 F.3d at 1375 (quoting *Williamson*, 792 F.3d at 1350). There, the Federal Circuit found the plaintiff “[did] not explain how its ‘logic’ . . . amounts to ‘sufficient structure for performing [the modification] function.’” *Id.* at 1374 (second alteration in original) (quoting *Williamson*, 792 F.3d at 1348). The court found the term invoked § 112, paragraph 6 because “logic” conveyed “only a ‘general category of whatever may perform’ the [claim’s] function.” *Id.* (citation omitted). In the present case, however, “code for” is not merely a “general category of whatever may perform” the claimed function. *Id.* The term “code for” recites specific structure—computer code—which is “sufficient . . . to perform the claimed functions.” *See id.* at 1375. Although computer code is based on logic, it is not logic alone. Term 8 is not limited to “whatever may perform” the “automatic transformation” functionality. *See id.* at 1374. Unlike in *Egenera*, where “logic for modifying” did not provide sufficient structure, *id.*, Term 8 is limited to computer code. The government has not sufficiently shown how computer code is insufficient to perform the function of “automatic transformation.” *Zeroclick*, 891 F.3d at 1007.

Plaintiffs contend the term is not subject to means-plus-function interpretation because the claimed function is available as off-the-shelf software, similar to the claim in *Dyfan*. Tr. at 168:19–21; *see Dyfan*, 28 F.4th at 1368. In *Dyfan*, the Federal Circuit assessed the limitation below by assessing the claimed functionality in light of expert testimony:

said code, when executed, further configured to: . . . after the first visual information is caused to be output based on the first location-relevant information; after the at least one mobile device is moved in the building; and in response to the receipt, from the at least one server and via the second wireless communications protocol, of the second response message including the second location-relevant information: cause to be output, via the at least one mobile device, the second visual information based on the second location-relevant information

Dyfan, 28 F.4th at 1367 (quoting U.S. Patent No. 10,194,292 col. 41 l. 47–col. 42 l. 6 (filed Apr. 6, 2018)). The expert in *Dyfan* testified a PHOSITA “would have known of off-the-shelf code and applications” for performing the claimed functionality. *Id.* at 1369. According to the expert, “wireless communication ‘protocol[s]’ were terms of art well-understood by persons of ordinary skill, . . . and conventional off-the-shelf ‘code’ on a mobile device ‘would implement the [communication] protocols.’” *Id.* (citations omitted). The Federal Circuit credited the expert’s unrebuted testimony to conclude “because the recited functions can be performed by conventional off-the-shelf software, a person of ordinary skill in the art would have understood the alleged means-plus-function ‘code’ limitations in the asserted claims to connote structure.” *Id.* (citing *Zeroclick*, 891 F.3d at 1008). According to *Dyfan*, a term starting with “code for” is therefore not subject to means-plus-function interpretation if “off-the-shelf software” can perform the claimed functions. *Id.*

Plaintiffs allege the function of “automatically transforming” is a novel application of Microsoft Excel Visual Basic code and an example of “off-the-shelf” software similar to *Dyfan*. Tr. at 168:15–21 (“THE COURT: So what does [the ‘code for’ language] limit [the claim] to? [PLAINTIFFS]: Well, it limits it [to] a computer program or code that actually performs the recited function . . . in a new way . . . And the spec specifically teaches Microsoft Excel Visual Basic as an example of an off-the-shelf code that existed and could be used.”); *see also* Gov’t’s Resp. Indef. Br. at 29 (“In the interest of narrowing the issues before the Court, [the government] does not contest e-Numerate’s identification of function and structure [for Term 8].”). In *Dyfan*, the Federal Circuit “look[ed] beyond the initial ‘code’ . . . term to the functional language to see if a person of ordinary skill would have understood the claim limitation as a whole to connote sufficiently definite structure.” *See Dyfan*, 28 F.4th at 1368 (citing *Zeroclick*, 891 F.3d at 1008). In this case, the Court finds the government has not shown why Microsoft Visual Basic functions are insufficient off-the-shelf code to meet the structural requirements to avoid § 112, paragraph 6 interpretation. *Id.* As plaintiffs indicate, Appendices F and G of the ’383 Patent disclose Microsoft Excel Visual Basic “routines” for performing various functions of the claimed invention. *See* ’383 Patent col. 115–142; Tr. at 163:24–164:3 (“[PLAINTIFFS:] [Y]ou can look to see that the presence of off-the-shelf software, that is disclosed in the patents. One of the programs is Microsoft Excel Visual Basic, and it’s in Appendixes F and G, where there are actual code exemplars.”). The specification recites: “Appendix G provides code used in one implementation to create an RDML document 102.” ’383 Patent col. 46 ll. 17–18. The government contends Appendices F and G are insufficient to provide structure, alleging every off-the-shelf software limitation must be “known code” for *Dyfan*’s rule to apply. Tr. at 164:20–24 (“[THE GOVERNMENT:] [W]hat [plaintiffs] pointed to in Appendix F and G, . . . it’s got to be known code. So it’s stuff that people knew about. . . . Appendix F and G . . . is what they themselves wrote.”); Tr. at 173:7–12 (“[THE GOVERNMENT:] You look at . . . the term and ask[] . . . did such software exist . . . ? Here, we have no examples of commercial off-the-shelf products or library routines for performing any of these.”). The government, however, confuses knowledge of every claimed function with knowledge of off-the-shelf code; the question is whether the “structure-connoting term . . . is coupled with a description of the [term’s] operations, [because then] sufficient structural meaning generally will be conveyed to persons of ordinary skill in the art.” *Dyfan*, 28 F.4th at 1369 (quoting *Linear Tech. Corp. v. Impala Linear Corp.*, 379 F.3d 1311, 1320 (Fed. Cir. 2004)). No novelty analysis is required in this inquiry; means-plus-function interpretation does not apply when the “code for” term itself, read in light

of the claimed function and specification, connotes sufficient structure. *Id.* at 1365 (“If the limitation connotes sufficiently definite structure, it is not drafted in means-plus-function format, and § 112[, paragraph] 6 does not apply.”). *Dfyan* therefore counsels in favor of finding the government has not met its burden to prove § 112, paragraph 6 applies. *Id.*

The government contends its expert declaration supports finding Microsoft Visual Basic is insufficient off-the-shelf software to permit one of ordinary skill in the art to understand the claimed structure. Tr. at 178:6–8. The government, however, admits its expert did not directly assess Microsoft Visual Basic. Tr. at 178:10–13 (“[THE COURT:] [W]here does your expert say that Term 8’s specific function cannot be implemented with [V]isual [B]asic? [THE GOVERNMENT:] He doesn’t say that specifically.”). To the extent the government’s expert does provide any commentary from one of ordinary skill in the art, his analysis is conclusory and not helpful in this inquiry, as discussed *infra*. *See supra* note 12.

The government argues “code for” should be assessed similar to “nonce word[s]” found to invoke means-plus-function in various district court opinions. Gov’t’s Resp. Indef. Br. at 4 (first citing *Cypress Lake Software, Inc. v. Samsung Elecs. Am., Inc.*, 382 F.Supp. 3d 586 (E.D. Tex. 2019); and then citing *Cypress Lake Software, Inc. v. ZTE (USA) Inc.*, No. 17-cv-00300, 2018 WL 4035968 (E.D. Tex. Aug. 23, 2018)). Plaintiffs correctly note the government’s citations to two out-of-circuit district court cases are not binding on the Court; they posit instead *Zeroclick* is mandatory and applicable Federal Circuit precedent. Pl.’s Reply Indef. Br. at 12. Although the government’s briefing implies it would construe “code for” as a nonce term, *see* Gov’t’s Resp. Indef. Br. at 4, the government walked this position back at oral argument. Tr. at 173:13–25 (“[THE COURT:] [T]he government seems to represent . . . that just using the words ‘code for’ necessitates mean-plus-function. [THE GOVERNMENT]: Yeah, we’re not arguing it as a *per se* rule. . . . Different courts have held differently. . . . But the inquiry is a case-by-case basis.”); Tr. at 170:15–23 (“[THE COURT:] [R]ather than treating code as a nonce term, both *Cypress Lake* courts acknowledge the presumption that [§] 112, paragraph 6 does not apply, right? [THE GOVERNMENT]: Right. THE COURT: And those courts went on to individually analyze each ‘code for’ term and their language finding that paragraph 6 does not apply was rebutted for some, but not others, right? [THE GOVERNMENT]: Right.”). The Court therefore finds the *Cypress Lake* cases support the Court’s determination—the words “code for” do not necessarily invoke § 112, paragraph 6, rather they must be assessed in light of intrinsic and extrinsic evidence. In contrast, this case is similar to *Zeroclick*. There, the Federal Circuit found the district court had effectively—and improperly—interpreted “user interface code” as nonce words. *Zeroclick*, 891 F.3d at 1008. Correcting the district court, the Federal Circuit instead stated, in part, “a person of ordinary skill in the art could reasonably discern from the claim language that the words . . . ‘user interface code’ . . . are used not as generic terms or black box recitations of structure or abstractions, but rather as specific references to conventional graphical user interface programs or code, existing in prior art at the time of the inventions.” *Id.* Likewise, in this case, in the context of the claim language (including “code for causing automatic transformation of . . . [values of a] markup document”), the “code for” term refers to conventional code for manipulating markup documents, which existed in prior art at the time of the invention, including Microsoft Visual Basic.¹⁶ *See id.*

¹⁶ Plaintiffs further argue claim differentiation supports finding Term 8 should not be construed pursuant to § 112, paragraph 6. According to plaintiffs “the related ’816 and ’383 patents both contain claims explicitly in means-plus-

Lastly, the government contests plaintiffs' reliance on the similarity between the "code for" terms appearing in the system claim 11 and the functions of the method claim 19. *See Gov't's Resp. Indef. Br. at 30* (citing Pl.'s Indef. Br. at 26–28). According to the government, the similarity of the system claim reciting "code for" terms and the method claim *not* reciting "code for" "serves to demonstrate . . . claim 11 requires no particular structure, only 'code.'" *Id.* At oral argument, however, the government conceded a "code for" term could be definite even though an analogous "means for" term—reciting the exact same function—was indefinite. Tr. at 161:4–9; Tr. at 161:18–162:2. If a "code for" term and an analogous means-plus-function term can have different definiteness outcomes, however, then their similarity cannot "demonstrate [a claim requires] . . . only 'code.'" *See Gov't's Resp. Indef. Br. at 30.* The government has therefore not cited any intrinsic evidence to overcome the presumption § 112, paragraph 6 does not apply. *See Zeroclick*, 891 F.3d at 1007–08 (finding "a [PHOSITA] could reasonably discern from the claim language . . . [the words at issue were used] as specific references to conventional . . . code . . . existing in prior art at the time of the inventions").

ii. Whether Extrinsic Evidence Indicates "Code For" Invokes § 112, paragraph 6

Turning to extrinsic evidence, the government contends its expert report supports a finding "the words 'code for' do not convey any definite structure." *Gov't's Resp. Indef. Br. at 30* (citing Martin Decl. ¶ 165). Dr. Martin's declaration starts by reciting the full claim language, followed by the following statement:

This term uses 'code for' language. In my opinion, a person of ordinary skill in the art would understand that this claim term does not refer to known or conventional programs or code from the time of the invention. Instead, a person of ordinary skill in the art would understand that it describes black-box functionality and therefore I understand it should be construed under the § 112, ¶ 6 framework.

Martin Decl. ¶ 165. The government contends Dr. Martin "provide[d] a well-reasoned opinion as to why this term is indefinite to a P[H]OSITA." *Gov't's Reply Indef. Br. at 34.* Dr. Martin's opinion may have been well-reasoned, but none of those reasons were included in his declaration. The declaration provides little analysis to aid the Court in understanding how he arrived at his conclusion. The Federal Circuit has noted "conclusory, unsupported assertions by experts as to the definition of a claim term are not useful to a court." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1318 (Fed. Cir. 2005) ("[A] court should discount any expert testimony 'that is clearly at odds with . . . the written record of the patent.'" (citation omitted)). The government admits it "do[es not] know what [Dr. Martin] looked at." Tr. at 181:6–12. According to the government, Dr. Martin "searched for, as a thought exercise, . . . some known conventional

function format [and] [w]hen e-Numerate intended to use mean-plus function format, it clearly did so," but it did not do so for Term 8. Pl.'s Indef. Br. at 33. The Court does not need to determine whether claim differentiation alone can dispositively prove the inapplicability of means-plus-function interpretation to Term 8. To the extent claim differentiation applies here, the intrinsic and extrinsic evidence collectively indicate one of ordinary skill in the art would understand the term "code for" connotes structure, unlike the other means-plus-function terms at issue. *See Dyfan, LLC v. Target Corp.*, 28 F.4th 1360, 1367–68 (Fed. Cir. 2022).

software that implements this [function]. . . . And there wasn't such a thing." Tr. at 159:12–20. The Martin Declaration provides no method by which the Court can follow this "thought exercise." The declaration therefore cannot aid the Court in reaching a similar conclusion as the government's expert. *See Phillips*, 415 F.3d at 1318.

The government has not identified intrinsic or extrinsic evidence sufficient to rebut the presumption Term 8 does not invoke means-plus-function interpretation under § 112, paragraph 6. *See Zeroclick*, 891 F.3d at 1007–08 (finding "a [PHOSITA] could reasonably discern from the claim language . . . [the words at issue were used] as specific references to conventional . . . code . . . existing in prior art at the time of the inventions"). The Court accordingly does not construe the term under § 112, paragraph 6. The government did not present any arguments (in briefing or at oral argument) to suggest the "code for" terms are otherwise indefinite. *See* Tr. at 161:20–162:2 ("[THE GOVERNMENT:] [I]f you've already decided [the claim term is] not [means-plus-function] . . . absent some other construction, it would be plain and ordinary, code would be software . . . and software for implementing THE COURT: So it would be valid? [THE GOVERNMENT]: Right."). The Court therefore finds Term 8 is not indefinite for lack of disclosed structure. *See id.*; *Dyfan*, 28 F.4th at 1367–68 ("In determining whether software limitations . . . recite sufficient structure, we can look beyond the initial 'code' or 'application' term to the functional language to see if a [PHOSITA] would have understood the claim limitation as a whole to connote sufficiently definite structure.").

Plaintiffs' Proposed Construction	Defendant's Proposed Construction
Not construed under § 112, ¶ 6.	This term is indefinite under 35 U.S.C. § 112, ¶ 6 because it claims a function but the specification fails to disclose definite structure for performing the claimed function.
Court's Final Construction	
Not construed under § 112, ¶ 6.	
Not indefinite for lack of disclosed structure.	

XI. Terms #9–18: Additional "Code-For" Terms

The government contends Terms 9–18 are indefinite under 35 U.S.C. § 112, paragraph 6 for failure to recite structure to perform the claimed function. *See* Rev. J. Cl. Constr. at 55–61; Gov't's Resp. Indef. Br.; Tr. at 191:4–7. For analogous reasons to Term 8, *supra*, the Court finds the term "code for" does not invoke § 112, paragraph 6. *See* Section X. Although the government stated at oral argument each "code for" term should be assessed on a "term-by-term basis," Tr. at 153:12–13, the government's own briefing does not follow this approach. For each term, the government merely recites: "[f]or the reasons set forth above, this claim term is in means-plus-function format and should be governed by § 112, ¶ 6." *See* Gov't's Resp. Indef. Br. at 32, 33, 35, 36, 37, 38, 41, 42. Similarly, the government's expert provides no additional analysis. *See* Martin Decl. ¶¶ 165, 172, 182, 189, 196, 203, 210 (testifying only "In my opinion, a person of ordinary skill in the art would understand that this claim term does not refer to known or conventional programs or code from the time of the invention. Instead, a person of ordinary skill in the art would understand that it describes black-box functionality and therefore I

understand it should be construed under the § 112, ¶ 6 framework.”); *accord* Suppl. Decl. of Dr. David Martin ¶ 5, ECF No. 81-8; 2d Suppl. Decl. of Dr. David Martin ¶¶ 17, 30, 49 ECF No. 111-1. The Court tends to agree with plaintiffs’ suggestion at oral argument the government’s expert report “is a litigation driven declaration.” Tr. at 182:7. The government acknowledges Dr. Martin “applies the same rationale for each term.” Tr. at 186:25–187:9. According to the government, this “same rationale” is sufficient to support the expert’s individual conclusion on each term, but the government acknowledged the declaration “could have been laid out and presented better.” Tr. at 189:18. As indicated *supra* Section X.B.2.ii, Dr. Martin’s declaration provides no rationale for the Court follow—much less consider. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1318 (Fed. Cir. 2005) (“[A] court should discount any expert testimony ‘that is clearly at odds with . . . the written record of the patent.’”) (citation omitted).

The government has the burden of proving by a preponderance of the evidence the term “code for” invokes § 112, paragraph 6. *See Zeroclick, LLC v. Apple Inc.*, 891 F.3d 1003, 1007–08 (Fed. Cir. 2018). After reviewing each of the terms individually, the Court finds the government has not provided any argument or evidence to meet this burden. The Court accordingly construes each term as not invoking § 112, paragraph 6. The government again did not present any arguments either in its briefing or at oral argument to suggest the “code for” terms are otherwise indefinite. *See* Tr. at 161:20–162:2 (“[THE GOVERNMENT:] [I]f you’ve already decided [the claim term is] not [means-plus-function] . . . absent some other construction, it would be plain and ordinary THE COURT: So it would be valid? [THE GOVERNMENT]: Right.”). As each of the terms are not means-plus-function terms, the Court therefore finds they are not indefinite for lack of disclosed structure. *See id.*; *Dyfan, LLC v. Target Corp.*, 28 F.4th 1360, 1367–68 (Fed. Cir. 2022); *see also supra* Section X.

Each term’s proposed, preliminary, and final constructions are reproduced below:

Plaintiffs’ Proposed Constructions (Terms #9–18)		Defendant’s Proposed Constructions (Terms #9–18)
Not construed under § 112, ¶ 6. Terms should be construed consistent with other identified terms.		To be construed under § 112, ¶ 6. <u>Function:</u> Indefinite. <u>Structure:</u> Insufficiently disclosed. Term is indefinite.
The Court’s Preliminary Constructions		
Term #9	“code for processing at least a part of the first markup document and at least a part of the second markup document, resulting in a single markup document”	Not construed pursuant to § 112, ¶ 6. In the alternative, similar to claim Term #6, indefinite for lack of structure. <u>Function:</u> “processing at least a part of the first markup document and at least a part of the second markup document, resulting in a single markup document”

		<u>Structure:</u> Undisclosed
Term #10	<p>“code for identifying a first markup document including first numerical values and first tags reflecting first characteristics of the first numerical values associated with a first unit of measure, and a second markup document including second numerical values and second tags reflecting second characteristics of the second numerical values associated with a second unit of measure, wherein the first tags and the second tags each include computer-readable semantic tags that describe a semantic meaning of a corresponding one of at least one of the first numerical values or the second numerical values, via a computer-readable tagging association therebetween, where the first characteristics of the first numerical values associated with the first unit of measure are different from the second characteristics of the second numerical values associated with the</p>	<p>Not construed pursuant to § 112, ¶ 6</p> <p>In the alternative, similar to claim Term #7, indefinite for lack of structure.</p> <p><u>Function:</u> “identifying a first markup document including first numerical values and first tags reflecting first characteristics of the first numerical values associated with a first unit of measure, and a second markup document including second numerical values and second tags reflecting second characteristics of the second numerical values associated with a second unit of measure, wherein the first tags and the second tags each include computer-readable semantic tags that describe a semantic meaning of a corresponding one of at least one of the first numerical values or the second numerical values via a computer-readable tagging association therebetween, where the first characteristics of the first numerical values associated with the first unit of measure are different from the second characteristics of the second numerical values associated with the second unit of measure”</p> <p><u>Structure:</u> Undisclosed.</p>

	second unit of measure”	
Term #11	“code for storing a plurality of original documents including a plurality of original values, including a first document including first values and a second document including second values”	<p>Not construed pursuant to § 112, ¶ 6.</p> <p>In the alternative, not indefinite.</p> <p><u>Function</u>: “storing a plurality of original documents including a plurality of original values, including a first document including first values and a second document including second values”</p> <p><u>Structure</u>: The Primary Data Store (PDS) (fig.7, box 712; fig.13; col. 31 ll. 8–57)</p>
Term #12	“code for processing at least a part of the first document and at least a part of the second document, resulting in at least one object including at least one reference to at least one of the plurality of original values of at least one of the plurality of original documents”	<p>Not construed pursuant to § 112, ¶ 6.</p> <p>In the alternative, not indefinite.</p> <p><u>Function</u>: “processing at least a part of the first document and at least a part of the second document, resulting in at least one object including at least one reference to at least one of the plurality of original values of at least one of the plurality of original documents”</p> <p><u>Structure</u>: The RDML Processor 708 ('748 Patent col. 28 ll. 4–33).</p>
Term #13	“code for receiving a user selection of one or more computer-readable semantic tags”	<p>Not construed pursuant to § 112, ¶ 6.</p> <p>In the alternative, not indefinite.</p> <p><u>Function</u>: “receiving a user selection of one or more objects”</p> <p><u>Structure</u>: Fig.21, box 2108; fig.22B, box 2206; fig.22D box 2210; col. 45 ll. 20–48; Appendix F.</p>
Term #14	“code for receiving a user selection of one or more of the original values”	<p>Not construed pursuant to § 112, ¶ 6.</p> <p>In the alternative, not indefinite.</p> <p><u>Function</u>: “receiving a user selection of one or more options”</p>

		<u>Structure:</u> Fig.21, box 2110; fig.22D; col. 45 ll. 20–48; Appendix F.
Term #15	“code for mapping the one or more of the computer-readable semantic tags to the one or more of the original values”	<p>Not construed pursuant to § 112, ¶ 6.</p> <p>In the alternative, not indefinite.</p> <p><u>Function:</u> “mapping the one or more of the computer-readable semantic tags to the one or more of the original values”</p> <p><u>Structure:</u> The RDML Processor 708 ('748 Patent col. 28 ll. 4–33).</p>
Term #16	“code for outputting a presentation that is based on at least a portion of the at least one object, the presentation capable of including at least a portion of the original values including the at least one original value, where the computer program product is configured such that, based on the at least one reference of the at least one object to the at least one original value of the at least one original document, a change to the at least one original value of the at least one original document results in a corresponding change in an instance of the presentation”	<p>Not construed pursuant to § 112, ¶ 6.</p> <p>In the alternative, indefinite for lack of structure.</p> <p><u>Function:</u> “outputting a presentation that is based on at least a portion of the at least one object, the presentation capable of including at least a portion of the original values including the at least one original value, where the computer program product is configured such that, based on the at least one reference of the at least one object to the at least one original value of the at least one original document, a change to the at least one original value of the at least one original document results in a corresponding change in an instance of the presentation”</p> <p><u>Structure:</u> Undisclosed.</p>
Term #17	“code for outputting a report that is based on at least a portion of the at least one object, the report capable of including	<p>Not construed pursuant to § 112, ¶ 6.</p> <p>In the alternative, indefinite for lack of algorithm.</p>

	<p>at least a portion of the original values including the at least one original value, where the computer program product is configured such that, based on the at least one reference of the at least one object to the at least one original value of the at least one original document, a change to the at least one original value of the at least one original document results in a corresponding change in an instance of the report”</p>	<p><u>Function</u>: “outputting a report that is based on at least a portion of the at least one object, the report capable of including at least a portion of the original values including the at least one original value, where the computer program product is configured such that, based on the at least one reference of the at least one object to the at least one original value of the at least one original document, a change to the at least one original value of the at least one original document results in a corresponding change in an instance of the report”</p> <p><u>Structure</u>: RDML data viewer 100 ('748 Patent col. 7 ll. 53–55, col. 14 ll. 31–46), but no algorithm disclosed.</p>
Term #18	<p>“code for outputting at least one computer-readable Extensible Markup Language (XML)-compliant data document that is based on at least a portion of the at least one object and at least a portion of the mapping, the at least one computer-readable XML-compliant data document capable of including a plurality of line items with at least a portion of the original values including the at least one original value and at least some of the computer-readable semantic tags, where the computer program product is configured such that, based on the at least one reference of the at least one object to the at least one original value of the at least one original document, a change to the at least one original value of the at least one original document results in a corresponding change in an instance of the at least one computer-readable XML-compliant data document:, said computer program</p>	<p>Not construed pursuant to § 112, ¶ 6.</p> <p>In the alternative, indefinite for lack of algorithm.</p> <p><u>Function</u>: “outputting at least one computer-readable Extensible Markup Language (XML)-compliant data document that is based on at least a portion of the at least one object and at least a portion of the mapping, the at least one computer-readable XML-compliant data document capable of including a plurality of line items with at least a portion of the original values including the at least one original value and at least some of the computer-readable semantic tags, where the computer program product is configured such that, based on the at least one reference of the at least one object to the at least one original value of the at least one original document, a change to the at least one original value of the at least one original document results in a corresponding change in an instance of the at least one computer-readable XML-compliant data document:, said computer program</p>

	<p>tags, where the computer program product is configured such that, based on the at least one reference of the at least one object to the at least one original value of the at least one original document, a change to the at least one original value of the at least one original document results in a corresponding change in an instance of the at least one computer-readable XML-compliant data document; said computer program product configured such that the at least some of the computer-readable semantic tags are each computer-readably coupled to the at least portion of the original values of at least one computer-readable XML-compliant data document”</p>	<p>product configured such that the at least some of the computer-readable semantic tags are each computer-readably coupled to the at least portion of the original values of at least one computer-readable XML-compliant data document”</p> <p><u>Structure:</u> RDML Processor, but no algorithm disclosed.</p>
The Court’s Final Constructions (Terms #9–18)		
<p>Not construed under § 112, ¶ 6.</p> <p>Not indefinite for lack of disclosed structure.</p>		

XI. Conclusion

The disputed terms implicating indefiniteness are interpreted by the Court in this Claim Construction Opinion and Order. The Court adopts the construction of the terms as set forth herein. The Court finds the following claims indefinite: U.S. Patent No. 8,185,816, claim 26 (Term 5); and U.S. Patent No. 9,262,383, claim 18 (Term 6, Term 7). The parties **SHALL FILE**

a joint status report proposing a schedule for further proceedings **on or before 14 March 2024**. To the extent practicable, the proposed schedule shall accord with the deadlines proposed in the parties' Joint Preliminary Status Report (JPSR), ECF No. 35, referencing Judge Albright's Standing Order governing proceedings in patent cases. The Court notes Judge Albright's Standing Order has been updated since the parties considered it for their original JPSR. *Standing Order Governing Proceedings (OGP) 4.4—Patent Cases* (W.D. Tex. Jan. 23, 2024).

The Court further **DIRECTS** the Clerk to correct the caption in this case, No. 19-859, to reflect the proper second named party, "e-Numerate, LLC," as appears on the caption of this Opinion and Order and the Cover Sheet of plaintiffs' Complaint, ECF No. 1-1.¹⁷

IT IS SO ORDERED.

s/ Ryan T. Holte
RYAN T. HOLTE
Judge

¹⁷ In previous orders, the Court included a caption listing "e-Numerate Solutions, LLC" as a party, aligning with this court's CM/ECF system.